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Scientific & Technical Information Center

Search Report
EIC 1700

STIC Database Tracking Number: 233816

To: JOHN MAPLES
Location: REM-6C89
Art Unit: 1745
Monday, August 13, 2007

Case Serial Number: 10/825437

From: USHA SHRESTHA
Location: EIC1700
REM-4B28 / REM-4B31
Phone: (571)272-3519

usha.shrestha@uspto.gov

Search Notes

Examiner MAPLES:

Please see the search results, feel free to contact me if you have any questions or if you like to refine the search query. Thank you for using STIC services!

Regards,
Usha

sira
Search and Information Resources Administration

STIC Search Results Feedback Form

USPTO

EIC17000

Questions about the scope or the results of the search? Contact *the EIC searcher or contact*:

Kathleen Fuller, EIC 1700 Team Leader
571/272-2505 REMSEN 4B28

Voluntary Results Feedback Form

- *I am an examiner in Workgroup:* ☐ *Example: 1713*
- *Relevant prior art found, search results used as follows:*

  - ☐ 102 rejection
  - ☐ 103 rejection
  - ☐ Cited as being of interest.
  - ☐ Helped examiner better understand the invention.
  - ☐ Helped examiner better understand the state of the art in their technology.

  Types of relevant prior art found:

  - ☐ Foreign Patent(s)
  - ☐ Non-Patent Literature
    (journal articles, conference proceedings, new product announcements etc.)

- *Relevant prior art not found:*

  - ☐ Results verified the lack of relevant prior art (helped determine patentability).
  - ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

Drop off or send completed forms to EIC1700 REMSEN 4B28

Terrel Morris Rush

TERREL MORRIS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700

8/9/07

Access DB# 233816

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: JOHN MAPLES Examiner # : 62294 Date: 8/9/07
Art Unit: 1745 Phone Number 30 2-1287 Serial Number: 10/825,437 + 11/432,402
Mail Box and Bldg/Room Location: REM-6C09 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

****

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: NON AQUEOUS ELECTROLYTE SECONDARY BATTERY

Inventors (please provide full names): Shinsuke Matsuno, Kashiwa-shi (JP); Tatsuoki Kohno, Tokyo (JP); Takao Sawa, Yokohama-shi (JP); Norio Takami, Yokohama-shi (JP)

Earliest Priority Filing Date: 4/17/03

***For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.**

1. A negative electrode active material containing an intermetallic compound having a long period order along each of at least two crystal axes and represented by formula (1) given below:

$LnM1_yM2_z$ (1)

where y and z fall within the ranges of $0.3 \leq y \leq$ 1.5 and 1.5 $\leq z \leq 3$, respectively, Ln denotes at least one element having an atomic radius in crystal in a range of 1.6×10^{-10} to 2.2×10^{-10} m, M1 denotes at least one element selected from the group consisting of Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn and Nb, and M2 denotes at least one element selected from the group consisting of P, Si, Ge, Sn and Sb.

2. The negative electrode active material according to claim 1, wherein Ln denotes at least one element selected from the group consisting of La, Ce, Pr, Nd, Pm, Sm, Mg, Ca, Sr, Ba, Y, Zr and Hf.

ALSO: PLEASE SEARCH FOR SPECIFIC FORMULA: $CeNiSi_2$

AND FOR LATTICE CONSTANT OF CRYSTAL AXIS "a" AND FOR SIZE OF TWO CRYSTAL AXES

****

STAFF USE ONLY **Type of Search** **Vendors and cost where applicable**

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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BIB DATA SHEET

CONFIRMATION NO. 8012

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
10/825,437	04/16/2004 RULE	429	1745	252020US2SRD

APPLICANTS
Shinsuke Matsuno, Kashiwa-shi, JAPAN;
Tatsuoki Kohno, Tokyo, JAPAN;
Takao Sawa, Yokohama-shi, JAPAN;
Norio Takami, Yokohama-shi, JAPAN;

** **CONTINUING DATA** *************************

** **FOREIGN APPLICATIONS** *************************
JAPAN 2003-113190 04/17/2003
JAPAN 2003-336246 09/26/2003

** **IF REQUIRED, FOREIGN FILING LICENSE GRANTED** **
06/24/2004

Foreign Priority claimed ☐ Yes ☐ No 35 USC 119(a-d) conditions met ☐ Yes ☐ No Verified and Acknowledged ____ Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		JAPAN	6	17	3

ADDRESS
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314
UNITED STATES

TITLE
Nonaqueous electrolyte secondary battery

FILING FEE RECEIVED	FEES: Authority has been given in Paper	
900	FEES: Authority has been given in Paper No.__________ to charge/credit DEPOSIT ACCOUNT No.__________ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other __________ ☐ Credit

ABSTRACT OF THE DISCLOSURE

The present invention provides a nonaqueous electrolyte secondary battery including a positive electrode, a negative electrode and a nonaqueous electrolyte. The negative electrode contains an alloy having a $CeNiSi_2$ type crystal structure.

WHAT IS CLAIMED IS:

1. A nonaqueous electrolyte secondary battery comprising:

a positive electrode;

a negative electrode containing an alloy having a $CeNiSi_2$ type crystal structure; and

a nonaqueous electrolyte.

2. The nonaqueous electrolyte secondary battery according to claim 1, wherein a lattice constant of crystal axis "a" of the $CeNiSi_2$ type crystal structure falls within a range of 3.5Å to 5.5Å.

3. The nonaqueous electrolyte secondary battery according to claim 2, wherein said lattice constant falls within a range of 4Å to 5Å.

4. The nonaqueous electrolyte secondary battery according to claim 1, wherein the alloy contains at least one kind of element selected from the group consisting of P, Si, Ge, Sn and Sb.

5. The nonaqueous electrolyte secondary battery according to claim 4, wherein the alloy further contains at least one kind of element having an atomic radius falling within a range of 1.6×10^{-10} m to 2.2×10^{-10} m.

6. The nonaqueous electrolyte secondary battery according to claim 1, wherein the alloy has a composition represented by formula (A) given below:

$$LnM1_xM2_y \qquad (A)$$

where Ln denotes at least one kind of element selected from the elements having an atomic radius falling within a range of 1.6×10^{-10} m to 2.2×10^{-10} m, M1 is at least one element selected from the group consisting of Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, and Nb, M2 is at least one element selected from the group consisting of P, Si, Ge, Sn and Sb, and x and y satisfy the conditions of $0.5 \leqq x \leqq 1.5$ and $1.5 \leqq y \leqq 3.5$.

7. The nonaqueous electrolyte secondary battery according to claim 6, wherein the element Ln is at least one element selected from the group consisting of La, Ce, Pr, Nd, Pm, Sm, Mg, Ca, Sr, Ba, Y, Zr and Hf.

8. The nonaqueous electrolyte secondary battery according to claim 6, wherein the atomic ratio x satisfies $0.6 \leqq x \leqq 1.3$.

9. The nonaqueous electrolyte secondary battery according to claim 6, wherein the atomic ratio y satisfies $1.7 \leqq y \leqq 2.5$.

10. The nonaqueous electrolyte secondary battery according to claim 1, wherein the negative electrode satisfies formula (B) given below:

$$0.95 \geqq (w/d)/\rho \geqq 0.55 \qquad \text{(B)}$$

where ρ denotes a true density (g/cm^3) of the alloy, d denotes a thickness (μm) of the negative electrode, and w denotes a weight per unit area (g/m^2) of the negative electrode.

11. The nonaqueous electrolyte secondary battery according to claim 1, wherein the alloy is a single phase alloy or a polyphase alloy.

12. A nonaqueous electrolyte secondary battery comprising:

a positive electrode;

a negative electrode containing an alloy having a TiNiSi type crystal structure; and

a nonaqueous electrolyte.

13. The nonaqueous electrolyte secondary battery according to claim 12, wherein a lattice constant of crystal axis b of the TiNiSi type crystal structure falls within a range of 4Å to 5.5Å.

14. The nonaqueous electrolyte secondary battery according to claim 12, wherein the alloy contains Sn.

15. The nonaqueous electrolyte secondary battery according to claim 12, wherein the alloy has a composition represented by formula (C) given below:

$$(Ni_{1-(X+Z)}Ln_XM_Z)_ySn_{100-y} \qquad (C)$$

where Ln denotes at least one kind of element selected from the elements having an atomic radius falling within a range of 1.6×10^{-10} m to 2.2×10^{-10} m, M is at least one element selected from the group consisting of Ti, V, Co, Fe and Nb, and x, y and z satisfy the conditions of $0.4 \leqq x + z \leqq 0.7$, $40 \leqq y \leqq 80$ and $0 \leqq z \leqq 0.2$.

16. A nonaqueous electrolyte secondary battery

comprising:

a positive electrode;

a negative electrode containing an alloy having a ZrBeSi type crystal structure; and

a nonaqueous electrolyte.

17. The nonaqueous electrolyte secondary battery according to claim 16, wherein a lattice constant of crystal axis "a" of the ZrBeSi type crystal structure falls within a range of 4Å to 5.5Å.

```
=> d que l52
L3          1 SEA FILE=REGISTRY ABB=ON  PLU=ON  CENISI2/MF
L4      69943 SEA FILE=REGISTRY ABB=ON  PLU=ON  ((LA OR CE OR PR OR ND
                OR PM OR SM OR MG OR CA OR SR OR BA OR Y OR ZR OR HF)(L)(TI
                 OR V OR CR OR MN OR FE OR CO OR NI OR CU OR ZN OR
                NB)(L)(P OR SI OR GE OR SN OR SB))/ELS(L)4-7/ELC.SUB
L6       5396 SEA FILE=REGISTRY ABB=ON  PLU=ON  ((LA OR CE OR PR OR ND
                OR PM OR SM OR MG OR CA OR SR OR BA OR Y OR ZR OR HF)(L)(TI
                 OR V OR CR OR MN OR FE OR CO OR NI OR CU OR ZN OR
                NB)(L)(P OR SI OR GE OR SN OR SB))/ELS(L)3/ELC.SUB
L8       5385 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L6
L10     18752 SEA FILE=HCAPLUS ABB=ON  PLU=ON  "BATTERY ANODES"+PFT,NT,OL
                D,NEW/CT
L11     24086 SEA FILE=HCAPLUS ABB=ON  PLU=ON  "BATTERY CATHODES"+PFT,NT,
                OLD,NEW/CT
L12      9464 SEA FILE=HCAPLUS ABB=ON  PLU=ON  "BATTERY ELECTROLYTES"+PFT
                ,NT,OLD,NEW/CT
L13     71770 SEA FILE=HCAPLUS ABB=ON  PLU=ON  "SECONDARY BATTERIES"+PFT,
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L14    666169 SEA FILE=HCAPLUS ABB=ON  PLU=ON  "CRYSTAL STRUCTURE"+PFT,NT
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L15       133 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L8 AND (L10 OR L11 OR L12
                OR L13)
L16         5 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L15 AND L14
L17        26 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L15 AND CRYSTAL?
L18         1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L15 AND CRYSTAL AXES?
L19        24 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L3
L20         0 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L19 AND (L10 OR L11 OR
                L12 OR L13)
L21         0 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L19 AND (ELECTROD? OR
                BATTER? OR CATHOD? OR ANOD?)
L22         0 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L19 AND ELECTROCHEM?/SC,SX

L23        24 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L19 OR L20 OR L21 OR
                L22)
L24         1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L23 AND LATTICE CONSTANT?

L25         0 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L23 AND CRYSTAL AXES?
L26        24 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L23 OR L24 OR L25)
L28        13 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L15 AND NEGATIVE ELECTROD?

L29       140 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L8 AND LATTICE CONST?
L30         0 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L29 AND  CRYSTAL AXES?
L31       117 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L29 AND (L14 OR CRYSTAL
                STR?)
L32         2 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L31 AND ELECTROCHEM?/SC,SX

L33     78025 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L4
L34      1576 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L33 AND (L10 OR ANOD?)
L35         3 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L34 AND LATTICE CONSTANT?

L36         1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L34 AND  CRYSTAL AXES?
L37        28 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L34 AND  (L14 OR CRYSTAL
                STR?)
L38        25 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L37 AND ELECTROCHEM?/SC,SX

L39         5 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L38 AND L8
L40        13 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L15 AND (L14 OR  CRYSTAL
                STR?)
L41        33 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L38 OR L39 OR L40)
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L42            23 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L41 AND (1840-2003)/PRY,AY
                  ,PY
L43            31 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L16 OR L17 OR L18 OR L20
                  OR L21 OR L22 OR L30 OR L32 OR L35 OR L36
L44            26 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L43 AND (1840-2003)/PRY,AY
                  ,PY
L45            37 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L42 OR L44
L46            37 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L45 AND ELECTROCHEM?/SC,SX

L47            37 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L46 NOT L26
L48            11 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L28 AND (1840-2003)/PRY,AY
                  ,PY
L49            46 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L47 OR L48
L50            46 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L49 AND ELECTROCHEM?/SC,SX

L51            46 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L50 NOT L26
L52            41 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L51 AND DEV/RL


=> d l52 hit rn 1-
YOU HAVE REQUESTED DATA FROM 41 ANSWERS - CONTINUE? Y/(N):n

=> => d l52 1-41 ibib ed abs hitstr hitind

L52  ANSWER 1 OF 41  HCAPLUS  COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER:         2005:323474  HCAPLUS
DOCUMENT NUMBER:          142:395056
TITLE:                    Anode material for secondary nonaqueous
                          electrolyte battery, the anode, and the battery
INVENTOR(S):              Sawa, Takao; Kawashima, Fumiyuki; Matsuno,
                          Shinsuke; Kono, Tatsuoki; Takami, Norio
PATENT ASSIGNEE(S):       Toshiba Corp., Japan
SOURCE:                   Jpn. Kokai Tokkyo Koho, 18 pp.
                          CODEN: JKXXAF
DOCUMENT TYPE:            Patent
LANGUAGE:                 Japanese
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:

     PATENT NO.          KIND    DATE          APPLICATION NO.         DATE
     ---------------     ----    --------      --------------------    --------
     JP 2005100876        A      20050414      JP 2003-334582          20030926
                                                          <--
PRIORITY APPLN. INFO.:                         JP 2003-334582          20030926
                                                          <--
ED   Entered STN:  15 Apr 2005
AB   The material contains a crystalline alloy: AaSibMcTdXeRf [A = Mg,
     Ca, Sr, and/or Ba; M = Co, Ni, Fe, Cu, Mn, V, and/or Cr; T = Ti, Zr,
     Hf, Nb, Ta, Mo, and/or W; X = Sn, Al, Sb, Zn, and/or In; R = rare
     earth element(s); a+b+c+d+e+f = 100; a = 10-50; b = 30-65; 0<
     c≤ 30; d = 0-10; e = 0-25; and f = 0-20]. The battery has an
     anode, containing the above anode material.
IT   849800-40-4 849800-41-5 849800-42-6
        (anode materials containing crystalline Si alloys for secondary
        lithium batteries)
RN   849800-40-4  HCAPLUS
CN   Silicon alloy, base, Si 38,Ca 36,Ni 27 (9CI)  (CA INDEX NAME)

Component    Component      Component
              Percent     Registry Number
```

Si	38	7440-21-3
Ca	36	7440-70-2
Ni	27	7440-02-0

RN 849800-41-5 HCAPLUS
CN Nickel alloy, base, Ni 55,Si 26,Ca 19 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	55	7440-02-0
Si	26	7440-21-3
Ca	19	7440-70-2

RN 849800-42-6 HCAPLUS
CN Nickel alloy, base, Ni 42,Si 32,Ca 26 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	42	7440-02-0
Si	32	7440-21-3
Ca	26	7440-70-2

IC ICM H01M004-38
ICS H01M004-02; H01M010-40
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST secondary lithium battery anode **cryst** silicon alloy
IT **Battery anodes**
(anode materials containing **crystalline** Si alloys for secondary lithium batteries)
IT **Secondary batteries**
(lithium; anode materials containing **crystalline** Si alloys for secondary lithium batteries)
IT **849800-40-4 849800-41-5 849800-42-6**
849800-43-7 849800-44-8 849800-45-9 849800-46-0 849800-47-1
849800-48-2 849800-49-3 849800-50-6 849800-51-7 849800-52-8
849800-53-9 849800-54-0 849800-55-1 849800-56-2 849800-57-3
849800-58-4 849800-59-5 849800-61-9 849800-63-1 849800-65-3
849800-66-4 849800-67-5 849800-68-6 849800-69-7 849800-70-0
849800-71-1 849800-72-2 849800-73-3 849800-74-4 849800-75-5
849800-76-6 849800-77-7 849800-79-9 849800-80-2 849800-81-3
849800-82-4 849800-83-5 849800-84-6 849800-85-7 849800-86-8
849800-87-9 849800-88-0 849800-89-1 849800-90-4 849800-92-6
849800-93-7
(anode materials containing **crystalline** Si alloys for secondary lithium batteries)

L52 ANSWER 2 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:302700 HCAPLUS
DOCUMENT NUMBER: 142:376526
TITLE: Anode material for secondary nonaqueous electrolyte battery, the anode and the battery
INVENTOR(S): Sawa, Takao; Matsuno, Shinsuke; Kono, Tatsuoki; Takami, Norio; Kawashima, Fumiyuki
PATENT ASSIGNEE(S): Toshiba Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 28 pp.
CODEN: JKXXAF

DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
JP 2005093416	A	20050407	JP 2004-93667 <--		20040326
PRIORITY APPLN. INFO.:			JP 2003-89708 <--	A	20030328
			JP 2003-290386 <--	A	20030808

ED Entered STN: 08 Apr 2005
AB The material is represented as RaSnbMcTdXeAf [R = rare earth element(s); M = Co,Ni, Cu, Mn, V, and/or Cr; T = Ti, Zr, Hf, Nb, Ta, Mo, and/or W; X = Si, Al, Sb, and/or In; A = Mg, Ca, Sr, and/or Ba; a+b+c+d+e+f = 100; 0< a≤ 40; b = 45-70; 0< c≤ 30; d = 0-10; e = 0-20; f = 0-3] and contains a **crystallin** alloy, having a R-Sn-M phase as main phase. The battery has an anode, using the above anode material, a cathode, and a nonaq. electrolyte.
IT **849431-14-7 849431-15-8 849431-51-2**
(anodes containing **crystallin** tin rare earth alloys for secondary lithium batteries)
RN 849431-14-7 HCAPLUS
CN Tin alloy, base, Sn 57,La 32,Ni 10 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sn	57	7440-31-5
La	32	7439-91-0
Ni	10	7440-02-0

RN 849431-15-8 HCAPLUS
CN Tin alloy, base, Sn 54,La 33,Ni 13 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sn	54	7440-31-5
La	33	7439-91-0
Ni	13	7440-02-0

RN 849431-51-2 HCAPLUS
CN Tin alloy, base, Sn 56,La 32,Ni 11 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sn	56	7440-31-5
La	32	7439-91-0
Ni	11	7440-02-0

IC ICM H01M004-38
ICS H01M004-02; H01M010-40
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
IT **Battery anodes**
(anodes containing **crystallin** tin rare earth alloys for

```
        secondary lithium batteries)
IT   Secondary batteries
        (lithium; anodes containing crystallin tin rare earth alloys
        for secondary lithium batteries)
IT   96-49-1, Ethylene carbonate   623-53-0, Methyl ethyl carbonate
     12190-79-3, Cobalt lithium oxide (CoLiO2)   21324-40-3, Lithium
     hexafluorophosphate 849431-14-7 849431-15-8
     849431-16-9   849431-17-0   849431-18-1   849431-19-2   849431-20-5
     849431-21-6   849431-22-7   849431-23-8   849431-24-9   849431-25-0
     849431-26-1   849431-27-2   849431-28-3   849431-29-4   849431-30-7
     849431-31-8   849431-32-9   849431-33-0   849431-34-1   849431-35-2
     849431-36-3   849431-37-4   849431-39-6   849431-41-0   849431-43-2
     849431-45-4   849431-47-6   849431-49-8 849431-51-2
     849431-52-3   849431-53-4   849431-54-5   849431-55-6   849431-56-7
     849431-57-8   849431-58-9   849431-59-0   849431-60-3   849431-61-4
     849431-62-5   849431-63-6   849431-64-7   849431-65-8   849431-66-9
     849431-67-0   849431-68-1   849431-69-2   849431-70-5   849431-71-6
     849431-72-7   849431-73-8   849431-74-9   849431-75-0
        (anodes containing crystallin tin rare earth alloys for
        secondary lithium batteries)

L52  ANSWER 3 OF 41  HCAPLUS  COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER:         2004:885230  HCAPLUS
DOCUMENT NUMBER:          143:308993
TITLE:                    Synthesis and study of properties of finely
                          divided powdered electrode materials for
                          nickel-metal hydride secondary batteries
AUTHOR(S):                Galkin, P. S.; Zelenin, Yu. M.; Osadchaya, L. I.;
                          Sokolov, V. V.; Denisova, T. N.; Mit'kin, V. N.;
                          Mukhin, V. V.
CORPORATE SOURCE:         Inst. Neorg. Khim., SO RAN, Novosibirsk, Russia
SOURCE:                   Materialy Nauchno-Tekhnicheskoi Konferentsii
                          Sibirskogo Khimicheskogo Kombinata, 7th, Seversk,
                          Russian Federation, Oct. 22-25, 2002 (2003
     ), Meeting Date 2002, Volume 2, 118-122.  SGTI: Seversk, Russia.
                          CODEN: 69FZZQ; ISBN: 5-93915-028-4
DOCUMENT TYPE:            Conference
LANGUAGE:                 Russian
ED   Entered STN:  25 Oct 2004
AB   Study of properties of finely divided powdered electrode materials for
     nickel-metal hydride secondary batteries is carried out.  It is shown
     that addition of cobalt oxalate and hydroxide to the precursor mixture
     improve the cycling performance of electrode material.
IT   864515-79-7P 864515-80-0P 864515-81-1P
        (properties of finely divided powdered electrode materials for
        nickel-metal hydride secondary batteries)
RN   864515-79-7  HCAPLUS
CN   Nickel alloy, base, Ni 64,La 32,Ge 4.1 (9CI)   (CA INDEX NAME)

Component    Component      Component
              Percent    Registry Number
========+============+===============
    Ni          64            7440-02-0
    La          32            7439-91-0
    Ge           4.1          7440-56-4

RN   864515-80-0  HCAPLUS
CN   Nickel alloy, base, Ni 62,La 34,Sn 4.1 (9CI)   (CA INDEX NAME)

Component    Component      Component
```

	Percent	Registry Number
Ni	62	7440-02-0
La	34	7439-91-0
Sn	4.1	7440-31-5

RN 864515-81-1 HCAPLUS
CN Nickel alloy, base, Ni 62,La 30,Sn 7.8 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	62	7440-02-0
La	30	7439-91-0
Sn	7.8	7440-31-5

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56, 75
IT **Crystal structure**
Electric capacitance
Powders
Secondary batteries
(properties of finely divided powdered electrode materials for nickel-metal hydride secondary batteries)
IT 76131-47-0P 122232-06-8P **864515-79-7P** **864515-80-0P** **864515-81-1P** 864515-83-3P 864515-84-4P 864515-85-5P 864515-86-6P
(properties of finely divided powdered electrode materials for nickel-metal hydride secondary batteries)

L52 ANSWER 4 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:876055 HCAPLUS
DOCUMENT NUMBER: 141:352768
TITLE: Nonaqueous electrolyte secondary battery
INVENTOR(S): Matsuno, Shinsuke; Kohno, Tatsuoki; Sawa, Takao; Takami, Norio
PATENT ASSIGNEE(S): Kabushiki Kaisha Toshiba, Japan
SOURCE: Eur. Pat. Appl., 29 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1469538	A2	20041020	EP 2004-252246 <--	20040416
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR				
JP 2004335439	A	20041125	JP 2003-336246 <--	20030926
JP 3769277	B2	20060419		
KR 2004090905	A	20041027	KR 2004-26156 <--	20040416
US 2004258993	A1	20041223	US 2004-825437 <--	20040416
CN 1571210	A	20050126	CN 2004-10068452	20040416

<--
PRIORITY APPLN. INFO.: JP 2003-113190 A 20030417
<--
JP 2003-336246 A 20030926
<--

ED Entered STN: 22 Oct 2004
AB The present invention provides a nonaq. electrolyte secondary battery including a pos. electrode, a **neg. electrode** and a nonaq. electrolyte. The **neg. electrode** contains an alloy having a CeNiSi2 type **crystal structure.**
IT **776302-89-7 776302-90-0**
(nonaq. electrolyte secondary battery)
RN 776302-89-7 HCAPLUS
CN Lanthanum alloy, base, La 46,Ni 29,Sn 25 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
La	46	7439-91-0
Ni	29	7440-02-0
Sn	25	7440-31-5

RN 776302-90-0 HCAPLUS
CN Tin alloy, base, Sn 61,La 33,Ni 6 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sn	61	7440-31-5
La	33	7439-91-0
Ni	6	7440-02-0

IT **776302-88-6 776302-91-1 776302-92-2**
776302-93-3 776302-94-4 776302-95-5
776302-96-6 776302-97-7 776302-98-8
776302-99-9 776303-00-5 776303-01-6
776303-02-7 776303-03-8 776303-04-9
776303-05-0 776303-07-2 776303-08-3
776303-10-7 776303-12-9 776303-14-1
776303-16-3 776303-18-5 776303-19-6
776303-21-0 776303-23-2 776303-25-4
776303-27-6 776303-28-7
(nonaq. electrolyte secondary battery)
RN 776302-88-6 HCAPLUS
CN Tin alloy, base, Sn 66,La 21,Ni 13 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sn	66	7440-31-5
La	21	7439-91-0
Ni	13	7440-02-0

RN 776302-91-1 HCAPLUS
CN Lanthanum alloy, base, La 67,Sn 21,Ni 12 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
La	67	7439-91-0

Sn	21	7440-31-5
Ni	12	7440-02-0

RN 776302-92-2 HCAPLUS
CN Tin alloy, base, Sn 60,La 30,Ni 11 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sn	60	7440-31-5
La	30	7439-91-0
Ni	11	7440-02-0

RN 776302-93-3 HCAPLUS
CN Barium alloy, base, Ba 38,Sn 27,La 19,Ni 16 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ba	38	7440-39-3
Sn	27	7440-31-5
La	19	7439-91-0
Ni	16	7440-02-0

RN 776302-94-4 HCAPLUS
CN Tin alloy, base, Sn 52,Ni 18,Ce 15,Nd 15 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sn	52	7440-31-5
Ni	18	7440-02-0
Ce	15	7440-45-1
Nd	15	7440-00-8

RN 776302-95-5 HCAPLUS
CN Tin alloy, base, Sn 38,Ni 28,Y 23,Pr 11 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sn	38	7440-31-5
Ni	28	7440-02-0
Y	23	7440-65-5
Pr	11	7440-10-0

RN 776302-96-6 HCAPLUS
CN Tin alloy, base, Sn 66,Ni 23,Mg 11 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sn	66	7440-31-5
Ni	23	7440-02-0
Mg	11	7439-95-4

RN 776302-97-7 HCAPLUS
CN Tin alloy, base, Sn 51,Ni 18,Pm 15,Hf 9,Sm 7.6 (9CI) (CA INDEX NAME)

Component Component Component

	Percent	Registry Number
Sn	51	7440-31-5
Ni	18	7440-02-0
Pm	15	7440-12-2
Hf	9	7440-58-6
Sm	7.6	7440-19-9

RN 776302-98-8 HCAPLUS
CN Tin alloy, base, Sn 41,La 35,Ni 19,Ba 4.4,Ca 1.3 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sn	41	7440-31-5
La	35	7439-91-0
Ni	19	7440-02-0
Ba	4.4	7440-39-3
Ca	1.3	7440-70-2

RN 776302-99-9 HCAPLUS
CN Tin alloy, base, Sn 60,La 30,Ni 8.7,Nb 1.4 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sn	60	7440-31-5
La	30	7439-91-0
Ni	8.7	7440-02-0
Nb	1.4	7440-03-1

RN 776303-00-5 HCAPLUS
CN Tin alloy, base, Sn 60,La 28,Ni 8,Co 3.8 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sn	60	7440-31-5
La	28	7439-91-0
Ni	8	7440-02-0
Co	3.8	7440-48-4

RN 776303-01-6 HCAPLUS
CN Lanthanum alloy, base, La 49,Sn 37,Ni 13,Fe 0.3 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
La	49	7439-91-0
Sn	37	7440-31-5
Ni	13	7440-02-0
Fe	0.3	7439-89-6

RN 776303-02-7 HCAPLUS
CN Tin alloy, base, Sn 61,La 28,Ni 7.1,Ti 3.9 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number

Sn	61	7440-31-5
La	28	7439-91-0
Ni	7.1	7440-02-0
Ti	3.9	7440-32-6

RN 776303-03-8 HCAPLUS
CN Tin alloy, base, Sn 62,La 27,Ni 8.9,Ti 1.1,V 0.4 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sn	62	7440-31-5
La	27	7439-91-0
Ni	8.9	7440-02-0
Ti	1.1	7440-32-6
V	0.4	7440-62-2

RN 776303-04-9 HCAPLUS
CN Lanthanum alloy, base, La 44,Sn 37,Ni 19 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
La	44	7439-91-0
Sn	37	7440-31-5
Ni	19	7440-02-0

RN 776303-05-0 HCAPLUS
CN Tin alloy, base, Sn 51,La 40,Ni 8.5 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sn	51	7440-31-5
La	40	7439-91-0
Ni	8.5	7440-02-0

RN 776303-07-2 HCAPLUS
CN Tin alloy, base, Sn 71,La 24,Ni 5 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sn	71	7440-31-5
La	24	7439-91-0
Ni	5	7440-02-0

RN 776303-08-3 HCAPLUS
CN Tin alloy, base, Sn 44,La 34,Ni 22 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sn	44	7440-31-5
La	34	7439-91-0
Ni	22	7440-02-0

RN 776303-10-7 HCAPLUS
CN Tin alloy, base, Sn 65,La 22,Ni 14 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sn	65	7440-31-5
La	22	7439-91-0
Ni	14	7440-02-0

RN 776303-12-9 HCAPLUS
CN Tin alloy, base, Sn 56,La 33,Ni 11 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sn	56	7440-31-5
La	33	7439-91-0
Ni	11	7440-02-0

RN 776303-14-1 HCAPLUS
CN Cerium alloy, base, Ce 59,Si 24,Ni 17 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ce	59	7440-45-1
Si	24	7440-21-3
Ni	17	7440-02-0

RN 776303-16-3 HCAPLUS
CN Tin alloy, base, Sn 63,La 19,Ni 7.9,Ca 5.4,Co 4.7 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sn	63	7440-31-5
La	19	7439-91-0
Ni	7.9	7440-02-0
Ca	5.4	7440-70-2
Co	4.7	7440-48-4

RN 776303-18-5 HCAPLUS
CN Germanium alloy, base, Ge 52,Ce 17,Ni 17,Zr 11,Fe 4 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ge	52	7440-56-4
Ce	17	7440-45-1
Ni	17	7440-02-0
Zr	11	7440-67-7
Fe	4	7439-89-6

RN 776303-19-6 HCAPLUS
CN Tin alloy, base, Sn 56,La 23,Ba 9.7,Ni 6.9,Co 4.2 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number

Sn	56	7440-31-5
La	23	7439-91-0
Ba	9.7	7440-39-3
Ni	6.9	7440-02-0
Co	4.2	7440-48-4

RN 776303-21-0 HCAPLUS
CN Tin alloy, base, Sn 56,La 23,Ni 14,Ti 3.4,Mg 1.7,P 1.5 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sn	56	7440-31-5
La	23	7439-91-0
Ni	14	7440-02-0
Ti	3.4	7440-32-6
Mg	1.7	7439-95-4
P	1.5	7723-14-0

RN 776303-23-2 HCAPLUS
CN Lanthanum alloy, base, La 55,Si 22,Ni 6.9,V 6,Ti 5.6,Sb 4.8 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
La	55	7439-91-0
Si	22	7440-21-3
Ni	6.9	7440-02-0
V	6	7440-62-2
Ti	5.6	7440-32-6
Sb	4.8	7440-36-0

RN 776303-25-4 HCAPLUS
CN Tin alloy, base, Sn 58,La 29,Ni 9.9,Cr 3.3 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sn	58	7440-31-5
La	29	7439-91-0
Ni	9.9	7440-02-0
Cr	3.3	7440-47-3

RN 776303-27-6 HCAPLUS
CN Cerium alloy, base, Ce 64,Si 23,Mn 7.5,Ni 5.4 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ce	64	7440-45-1
Si	23	7440-21-3
Mn	7.5	7439-96-5
Ni	5.4	7440-02-0

RN 776303-28-7 HCAPLUS
CN Tin alloy, base, Sn 65,Sr 15,Ce 10,Ni 7,Nb 2.2,Zn 1.6 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sn	65	7440-31-5
Sr	15	7440-24-6
Ce	10	7440-45-1
Ni	7	7440-02-0
Nb	2.2	7440-03-1
Zn	1.6	7440-66-6

IC ICM H01M004-38
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56
IT **Battery anodes**
Battery cathodes
Battery electrolytes
Crystal structure
Secondary batteries
(nonaq. electrolyte secondary battery)
IT 96-49-1, Ethylene carbonate 623-53-0, Ethyl methyl carbonate 12190-79-3, Cobalt lithium oxide ($CoLiO_2$) 21324-40-3, Lithium hexafluorophosphate **776302-89-7 776302-90-0**
(nonaq. electrolyte secondary battery)
IT **776302-88-6 776302-91-1 776302-92-2**
776302-93-3 776302-94-4 776302-95-5
776302-96-6 776302-97-7 776302-98-8
776302-99-9 776303-00-5 776303-01-6
776303-02-7 776303-03-8 776303-04-9
776303-05-0 776303-07-2 776303-08-3
776303-10-7 776303-12-9 776303-14-1
776303-16-3 776303-18-5 776303-19-6
776303-21-0 776303-23-2 776303-25-4
776303-27-6 776303-28-7
(nonaq. electrolyte secondary battery)

L52 ANSWER 5 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:740649 HCAPLUS
DOCUMENT NUMBER: 141:228171
TITLE: Fabrication of Li polymer batteries with separator dispersion
INVENTOR(S): Naarmann, Herbert; Kruger, Franz Josef
PATENT ASSIGNEE(S): Gaia Akkumulatorenwerke G.m.b.H., Germany
SOURCE: PCT Int. Appl., 19 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004077588	A2	20040910	WO 2004-EP1933	20040226

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W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO

RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT,
BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,
IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI,
CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

DE 10308945 A1 20040923 DE 2003-10308945 20030228
<--
EP 1649537 A2 20060426 EP 2004-714781 20040226
<--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,
PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK

EP 1783852 A2 20070509 EP 2007-103829 20040226
<--
R: CZ, ES, FR, GB

PRIORITY APPLN. INFO.: DE 2003-10308945 A 20030228
<--
EP 2004-714781 A3 20040226

WO 2004-EP1933 W 20040226

ED Entered STN: 10 Sep 2004

AB The invention concerns Li polymer batteries provided with a separator system which comprises a dispersion and method for the production of Li polymer batteries. According to the inventive method for the production of Li polymer batteries, the dispersion is applied to the **anodes** and/or cathode material.

IT **1318-00-9**, Vermiculite
(fabrication of Li polymer batteries with separator dispersion)

RN 1318-00-9 HCAPLUS

CN Vermiculite (Mg0.33[Mg2-3(Al0-1Fe0-1)0-1](Si2.33-3.33Al0.67-1.67)(OH)2O10.4H2O) (CA INDEX NAME)

CM 1

CRN 122872-60-0
CMF Al . Fe . H O . Mg . O3 Si . O
CCI TIS

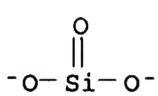
CM 2

CRN 17778-80-2
CMF O

O

CM 3

CRN 15593-90-5
CMF O3 Si



CM 4

CRN 14280-30-9
CMF H O

OH^-

CM 5

CRN 7439-95-4
CMF Mg

Mg

CM 6

CRN 7439-89-6
CMF Fe

Fe

CM 7

CRN 7429-90-5
CMF Al

Al

IC ICM H01M
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
IT **Zeolites (synthetic), uses**
(fabrication of Li polymer batteries with separator dispersion)
IT 1305-78-8, Calcium oxide, uses 1309-48-4, Magnesia, uses **1318-00-9**, Vermiculite 1344-28-1, Alumina, uses 9011-17-0, Kynar 2801 13453-69-5, Lithium metaborate 746641-96-3, Dyneon 210
(fabrication of Li polymer batteries with separator dispersion)

L52 ANSWER 6 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:548031 HCAPLUS
DOCUMENT NUMBER: 141:91822
TITLE: Anode material for nonaqueous electrolyte battery, the anode, and the battery
INVENTOR(S): Sawa, Takao; Kono, Tatsuoki; Matsuno, Shinsuke; Takami, Norio
PATENT ASSIGNEE(S): Toshiba Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent

LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004193005	A	20040708	JP 2002-360939 <--	20021212

PRIORITY APPLN. INFO.: JP 2002-360939 <-- 20021212

ED Entered STN: 08 Jul 2004

AB The anode material is RMx(Sn1-aXa)yTz (R ≥1 rare earth element; M = Ni, Cu, Co, Fe, and/or Mn; X = Si, Ge, Ga, and/or Al; T = Ti, Zr, Hf, V, Nb, Ta, Cr, Mo, and/or W; 1.8 ≤x ≤2.2, 1.8 ≤y ≤2.2, z ≤0.2, and a ≤0.4) containing tetragonal **crystalline** phase. The battery uses an anode containing the anode material.

IT **716379-56-5P 716379-57-6P**
(rare earth alloys containing tetragonal **crystalline** structures for secondary lithium battery anodes)

RN 716379-56-5 HCAPLUS
CN Tin alloy, base, Sn 48,La 28,Ni 24 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sn	48	7440-31-5
La	28	7439-91-0
Ni	24	7440-02-0

RN 716379-57-6 HCAPLUS
CN Tin alloy, base, Sn 47,La 28,Cu 25 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sn	47	7440-31-5
La	28	7439-91-0
Cu	25	7440-50-8

IC ICM H01M004-38
ICS H01M004-02; H01M006-16; H01M010-40

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

ST nonaq battery anode tetragonal **cryst** rare earth alloy

IT **Battery anodes**
(rare earth alloys containing tetragonal **crystalline** structures for secondary lithium battery anodes)

IT **716379-56-5P 716379-57-6P** 716379-58-7P
716379-59-8P 716379-60-1P 716379-61-2P 716379-62-3P
716379-63-4P 716379-64-5P 716379-65-6P 716379-66-7P
716379-67-8P 716379-68-9P 716379-69-0P 716379-70-3P
716379-71-4P 716379-72-5P 716379-73-6P 716379-74-7P
716379-75-8P 716379-76-9P 716379-77-0DP, La0.8Ce0.2Cu1.9Sn2V0.1
716379-78-1P 716379-79-2P 716379-80-5P 716379-81-6P
716379-82-7P 716379-83-8P 716379-84-9P 716379-85-0P
716379-86-1P 716379-87-2P 716379-88-3P
(rare earth alloys containing tetragonal **crystalline** structures for secondary lithium battery anodes)

L52 ANSWER 7 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2004:530340 HCAPLUS
DOCUMENT NUMBER: 141:91776
TITLE: Electrode material for secondary nonaqueous electrolyte battery, the electrode, and the battery
INVENTOR(S): Sawa, Takao; Kono, Tatsuoki; Matsuno, Shinsuke; Takami, Norio
PATENT ASSIGNEE(S): Toshiba Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 17 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004185881	A	20040702	JP 2002-349197 <--	20021129

PRIORITY APPLN. INFO.: JP 2002-349197 <-- 20021129

ED Entered STN: 02 Jul 2004

AB The material is represented as SnaCobMcTdXe or Sna(Co1-yFey)bMcTdXe(M = Ni, Cu, Mn, V, and/or Cr; T = Ti, Zr, Hf, Nb, Ta, Mo, W, and/or rare earth elements; X = Si, Al, Sb, and/or In; a+b+c+d+e = 100; a = 40-50; b = 35-55; c = 0-20; d = 0-10; e = 0-20; 0< yr≤ 0.8) and comprises an alloy, containing a hexagonal structured **crystal** phase. The battery has an anode containing the above mat, a cathode, and a nonaq. electrolyte.

IT **12526-60-2 12526-64-6**
(compns. of anode materials containing cobalt tin composite alloys for secondary batteries)

RN 12526-60-2 HCAPLUS

CN Cobalt, compd. with hafnium and tin (2:1:1) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Hf	1	7440-58-6
Co	2	7440-48-4
Sn	1	7440-31-5

RN 12526-64-6 HCAPLUS

CN Cobalt, compd. with tin and zirconium (2:1:1) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Zr	1	7440-67-7
Co	2	7440-48-4
Sn	1	7440-31-5

IC ICM H01M004-38
ICS C22C013-00; C22C019-07; H01M004-02; H01M010-40

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

ST secondary battery anode tin Co alloy compn **crystal** phase

IT **Battery anodes**
Secondary batteries

(compns. of anode materials containing cobalt tin composite alloys for secondary batteries)

IT 96-49-1, Ethylene carbonate 623-53-0, Methyl ethyl carbonate
12023-00-6 12190-79-3, Cobalt lithium oxide (CoLiO2) 12297-65-3
12526-60-2 12526-62-4 12526-63-5 **12526-64-6**
12526-67-9 12794-61-5 21324-40-3, Lithium hexafluorophosphate
109118-19-6 110445-75-5 110445-81-3 716378-22-2 716378-24-4
716378-27-7 716378-31-3 716378-33-5 716378-34-6 716378-35-7
716378-36-8 716378-37-9 716378-38-0 716378-39-1 716378-40-4
716378-41-5 716378-42-6 716378-43-7 716378-44-8 716378-45-9
716378-46-0 716378-47-1 716378-48-2 716378-49-3 716378-50-6
716378-51-7 716378-52-8 716378-53-9 716378-54-0 716378-55-1
716378-56-2 716378-57-3 716378-58-4
(compns. of anode materials containing cobalt tin composite alloys for secondary batteries)

L52 ANSWER 8 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:408231 HCAPLUS
DOCUMENT NUMBER: 140:393387
TITLE: Modified **anodes** for lithium polymer batteries
INVENTOR(S): Naarmann, Herbert; Kruger, Franz Josef
PATENT ASSIGNEE(S): Gaia Akkumulatorenwerke G.m.b.H., Germany
SOURCE: Ger. Offen., 8 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10251239	A1	20040519	DE 2002-10251239 <--	20021104
PRIORITY APPLN. INFO.:			DE 2002-10251239 <--	20021104

ED Entered STN: 20 May 2004

AB **Anodes** for lithium polymer cells are disclosed, where the active **anode** materials are modified with tin and/or organo-tin compds. This modification occurs especially via reaction with Sn-organic compds., vaporizing with tin, deposition of Sn, fine distribution of Sn or use of tin film as **anode** current collector. All specified measures according to invention were aimed to produce solid electrode interface for improved batteries, a suppressing of failure mechanisms (fading, cycle number) and among other things favorably to prevent to secondary reactions leading deposits. In addition, the measures serve the surface texture and elimination of irregular perturbative fields also for the battery improvement. Thus, the lithium polymer cells with so modified **anodes** possess protruding cycle stability and efficiency. The modified **anodes** can be used as components of Li polymer cells, diodes, electronic switches, measuring probes, light beam guards, databanks, electrophoresis units or detectors.

IT **1318-00-9**, Vermiculite
(modified **anodes** for lithium polymer batteries)

RN 1318-00-9 HCAPLUS

CN Vermiculite (Mg0.33[Mg2-3(Al0-1Fe0-1)0-1](Si2.33-3.33Al0.67-1.67)(OH)2O10.4H2O) (CA INDEX NAME)

CM 1

CRN 122872-60-0
CMF Al . Fe . H O . Mg . O3 Si . O
CCI TIS

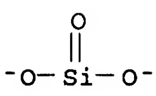
CM 2

CRN 17778-80-2
CMF O

O

CM 3

CRN 15593-90-5
CMF O3 Si



CM 4

CRN 14280-30-9
CMF H O

OH^-

CM 5

CRN 7439-95-4
CMF Mg

Mg

CM 6

CRN 7439-89-6
CMF Fe

Fe

CM 7

CRN 7429-90-5

CMF Al

Al

IC ICM H01M004-38
ICS H01M004-60
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 74, 76
ST battery lithium polymer modified **anode**
IT Glycols, uses
(ethers; modified **anodes** for lithium polymer batteries)
IT Ethers, uses
(glycol; modified **anodes** for lithium polymer batteries)
IT Secondary batteries
(lithium; modified **anodes** for lithium polymer batteries)
IT **Battery anodes**
Diodes
Electric switches
Electrophoresis apparatus
Sensors
(modified **anodes** for lithium polymer batteries)
IT Carbon black, uses
Lactams
Lactones
Polyacetylenes, uses
(modified **anodes** for lithium polymer batteries)
IT **Zeolites (synthetic), uses**
(modified **anodes** for lithium polymer batteries)
IT Information systems
(storage; modified **anodes** for lithium polymer batteries)
IT 7439-93-2D, Lithium, organoborate 7440-31-5, Tin, uses 7440-31-5D, Tin, organic compound 7440-44-0, Carbon, uses 7440-50-8, Copper, uses 7782-42-5, Graphite, uses 9033-83-4, Polyphenylene 21324-40-3, Lithium hexafluorophosphate 25067-58-7, Polyacetylene 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate
(modified **anodes** for lithium polymer batteries)
IT 1309-48-4, Magnesium oxide (MgO), uses **1318-00-9**, Vermiculite 1344-28-1, Alumina, uses 7631-86-9, Silica, uses 9011-17-0, Kynar 2801
(modified **anodes** for lithium polymer batteries)

L52 ANSWER 9 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:5013 HCAPLUS
DOCUMENT NUMBER: 138:42071
TITLE: Battery anode material containing a magnesium compound
INVENTOR(S): Yamada, Shinichiro; Inoue, Hiroshi; Endo, Takuya
PATENT ASSIGNEE(S): Sony Corporation, Japan
SOURCE: Eur. Pat. Appl., 13 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

EP 1271676	A1	20030102	EP 2002-12747 <--	20020607
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
JP 2003017048	A	20030117	JP 2001-195104 <--	20010627
JP 3533664	B2	20040531		
US 2003013018	A1	20030116	US 2002-171117 <--	20020613
US 7097938	B2	20060829		
PRIORITY APPLN. INFO.:			JP 2001-195104 <--	A 20010627

ED Entered STN: 03 Jan 2003

AB A **neg. electrode** material and a battery which has an excellent cycle characteristic as well as a high capacity are provided. A pos. electrode housed in an exterior can and a **neg. electrode** housed in an exterior cup are laminated with a separator there between. An electrolytic solution of lithium salt dissolved in a solvent is poured into the inside of both the exterior can and the exterior cup. The **neg. electrode** contains Mg2-xMIIxMI. MI expresses a first element such as Si, Sn, Ge, Pb, or the like. MII expresses a second element which is a metallic element, preferably Mn, Cu, Zn, or the like except both Mg and the first element. The x is preferably in the range of 0.1≤x≥1.9. Substituting part of Mg by the second element MII can produce the distortion of the **crystal structure**, ease distortion accompanying the occluding/releasing lithium, and improve the charge and discharge efficiency and the cycle characteristic.

IT **478396-94-0**, Magnesium manganese silicide (Mg1.9Mn0.1Si)
478396-96-2, Magnesium manganese silicide (Mg1.5Mn0.5Si)
478396-98-4, Magnesium manganese silicide (MgMnSi)
478397-01-2, Magnesium manganese silicide (Mg0.5Mn1.5Si)
478397-03-4, Copper magnesium silicide (Cu0.5Mg1.5Si)
478397-05-6, Magnesium zinc silicide (Mg1.5Zn0.5Si)
(battery anode material containing magnesium compound)

RN 478396-94-0 HCAPLUS
CN Magnesium manganese silicide (Mg1.9Mn0.1Si) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Si	1	7440-21-3
Mn	0.1	7439-96-5
Mg	1.9	7439-95-4

RN 478396-96-2 HCAPLUS
CN Magnesium manganese silicide (Mg1.5Mn0.5Si) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Si	1	7440-21-3
Mn	0.5	7439-96-5
Mg	1.5	7439-95-4

RN 478396-98-4 HCAPLUS
CN Magnesium manganese silicide (MgMnSi) (9CI) (CA INDEX NAME)

Component	Ratio	Component

		Registry Number
Si	1	7440-21-3
Mn	1	7439-96-5
Mg	1	7439-95-4

RN 478397-01-2 HCAPLUS
CN Magnesium manganese silicide (Mg0.5Mn1.5Si) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Si	1	7440-21-3
Mn	1.5	7439-96-5
Mg	0.5	7439-95-4

RN 478397-03-4 HCAPLUS
CN Copper magnesium silicide (Cu0.5Mg1.5Si) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Cu	0.5	7440-50-8
Si	1	7440-21-3
Mg	1.5	7439-95-4

RN 478397-05-6 HCAPLUS
CN Magnesium zinc silicide (Mg1.5Zn0.5Si) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Zn	0.5	7440-66-6
Si	1	7440-21-3
Mg	1.5	7439-95-4

IC ICM H01M004-38
ICS H01M004-46
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
IT **Battery anodes**
Secondary batteries
(battery anode material containing magnesium compound)
IT 7440-44-0, Carbon, uses 7782-42-5, Graphite, uses
478396-94-0, Magnesium manganese silicide (Mg1.9Mn0.1Si)
478396-96-2, Magnesium manganese silicide (Mg1.5Mn0.5Si)
478396-98-4, Magnesium manganese silicide (MgMnSi)
478397-01-2, Magnesium manganese silicide (Mg0.5Mn1.5Si)
478397-03-4, Copper magnesium silicide (Cu0.5Mg1.5Si)
478397-05-6, Magnesium zinc silicide (Mg1.5Zn0.5Si)
(battery anode material containing magnesium compound)
REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L52 ANSWER 10 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:780620 HCAPLUS
DOCUMENT NUMBER: 138:41933
TITLE: Electrochemical properties and structure of MlNi5-xSnx system

AUTHOR(S): Lin, Qin; Zhu, Dajian; Zhao, Shuang
CORPORATE SOURCE: Metallurgy School, University of Science and Technology Beijing, Beijing, 100083, Peop. Rep. China
SOURCE: Journal of University of Science and Technology Beijing (2002), 9(4), 269-272
CODEN: JSTBFO; ISSN: 1005-8850
PUBLISHER: University of Science and Technology Beijing
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 14 Oct 2002
AB The electrochem. properties and structure of MlNi5-xSnx(x=0-0.5) hydrogen storage alloys were investigated by pressure-composition isotherms, electrochem. measurements, X-ray diffraction (XRD), XPS and atomic parameters. With a small amount of tin substitution, the cycle life increases by 52% (0.5C) and 42% (1.0C), but maximum discharge capacity decreases only by 3.0% and 3.5%, resp. The cycle life is obviously improved by the low volume expansion and the formed SnO2 surface layers upon electrochem. cycling. The substitution of Ni by Sn leads to an increase of the unit cell volume and charge-discharge cycle life and decrease of the plateau pressure, hysteresis and the hydrogen storage capacity. The standard enthalpy of hydride formation decreases with increasing tin substitution. The main factor that influences the standard enthalpy of the hydriding reaction is the number of the outer orbit electrons and not the atomic size factor.
IT **142366-54-9**
(electrochem. properties and structure of MisNi5-xSnx hydrogen storage alloy)
RN 142366-54-9 HCAPLUS
CN Nickel alloy, base, Ni 66,La 32,Sn 2.7 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	66	7440-02-0
La	32	7439-91-0
Sn	2.7	7440-31-5

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56, 69, **72**
IT **Secondary batteries**
(electrochem. properties and structure of MisNi5-xSnx hydrogen storage alloy in relation to)
IT **Crystal structure**
X-ray photoelectron spectra
(of MisNi5-xSnx hydrogen storage alloy)
IT **142366-54-9** 161842-22-4 251481-71-7 251481-72-8
251481-73-9 478805-94-6
(electrochem. properties and structure of MisNi5-xSnx hydrogen storage alloy)
REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L52 ANSWER 11 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:726680 HCAPLUS
DOCUMENT NUMBER: 135:291336
TITLE: Hydrogen-absorbing titanium-chromium alloy **anode** and its manufacture

INVENTOR(S): Tsuji, Yoichiro; Yamamoto, Toru; Toyoguchi, Yoshinori; Matsuda, Hiromu
PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
JP 2001273891	A	20011005	JP 2000-34767 <--		20000214
PRIORITY APPLN. INFO.:			JP 1999-38376 <--	A	19990217
			JP 2000-10938 <--	A	20000119

ED Entered STN: 05 Oct 2001

AB The **anode** comprises a granular active mass containing a H-absorbing alloy represented as TiaM1bCrcM2dLe (M1 = Nb and/or Mo; M2 = Mn, Fe, Co, Cu, V, Zn, Zr, Ag, Hf, Ta, W, Al, Si, C, N, P, and/or B, L = rare earth metal and/or Y; a = 0.2-0.7; b = 0.01-0.4; c = 0.1-0.7; d = 0-0.3; e = 0-0.03; a + b + c + d + e = 1.0) having body-centered cubic or tetragonal **crystal structure** and comprising a Ti-Ni-based alloy phase on its surface. The **anode** is manufactured by following steps; (A) forming a Ni layer on a H-absorbing alloy powder by plating, adhering a Ni powder, or mixing with a gas containing Ni carbonyl and then thermal decomposition of the gas and then (B) heating the treated powder under inert gas atmospheric, H gas atmospheric, or vacuum at 500-1000°. A secondary alkaline battery using the **anode** has high capacity and long cycle life.

IT **288847-91-6 288847-94-9 288848-01-1**
288848-02-2 288848-03-3 288848-05-5
(hydrogen-absorbing **anode** containing Ti-Cr alloy powder having Ti-Ni alloy surface manufactured by nickel coating and heating)

RN 288847-91-6 HCAPLUS

CN Titanium alloy, base, Ti 45,Cr 34,Mo 13,La 5.2,Si 3.2 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ti	45	7440-32-6
Cr	34	7440-47-3
Mo	13	7439-98-7
La	5.2	7439-91-0
Si	3.2	7440-21-3

RN 288847-94-9 HCAPLUS

CN Titanium alloy, base, Ti 43,Cr 33,Mo 17,La 5,P 1.7 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ti	43	7440-32-6
Cr	33	7440-47-3
Mo	17	7439-98-7

La	5	7439-91-0
P	1.7	7723-14-0

RN 288848-01-1 HCAPLUS
CN Titanium alloy, base, Ti 40,Cr 32,Mo 18,La 5.2,Si 5.2 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ti	40	7440-32-6
Cr	32	7440-47-3
Mo	18	7439-98-7
La	5.2	7439-91-0
Si	5.2	7440-21-3

RN 288848-02-2 HCAPLUS
CN Titanium alloy, base, Ti 39,Cr 31,Mo 17,Fe 5.1,La 5,Si 2.5 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ti	39	7440-32-6
Cr	31	7440-47-3
Mo	17	7439-98-7
Fe	5.1	7439-89-6
La	5	7439-91-0
Si	2.5	7440-21-3

RN 288848-03-3 HCAPLUS
CN Titanium alloy, base, Ti 40,Cr 32,Mo 18,La 5.1,Si 4.1,Fe 2.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ti	40	7440-32-6
Cr	32	7440-47-3
Mo	18	7439-98-7
La	5.1	7439-91-0
Si	4.1	7440-21-3
Fe	2.1	7439-89-6

RN 288848-05-5 HCAPLUS
CN Titanium alloy, base, Ti 38,Cr 31,Mo 17,Fe 8,La 5,Si 1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ti	38	7440-32-6
Cr	31	7440-47-3
Mo	17	7439-98-7
Fe	8	7439-89-6
La	5	7439-91-0
Si	1	7440-21-3

IC ICM H01M004-38
ICS B22F005-00; C22C014-00; C22C019-00; H01M004-24; H01M004-62

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56

ST hydrogen absorbing **anode** titanium chromium alloy nickel coating heating; battery **anode** hydrogen absorbing titanium chromium alloy

IT Coating process
(electroless; hydrogen-absorbing **anode** containing Ti-Cr alloy powder having Ti-Ni alloy surface manufactured by nickel coating and heating)

IT **Battery anodes**
Heating
Mechanical alloying
Thermal decomposition
(hydrogen-absorbing **anode** containing Ti-Cr alloy powder having Ti-Ni alloy surface manufactured by nickel coating and heating)

IT 1333-74-0, Hydrogen, uses
(hydrogen-absorbing **anode** containing Ti-Cr alloy powder having Ti-Ni alloy surface manufactured by nickel coating and heating)

IT 288847-66-5 288847-67-6 288847-68-7 288847-69-8 288847-70-1
288847-71-2 288847-72-3 288847-73-4 288847-74-5 288847-75-6
288847-77-8 288847-79-0 288847-80-3 288847-81-4 288847-82-5
288847-83-6 288847-84-7 288847-85-8 288847-86-9 288847-87-0
288847-88-1 288847-89-2 288847-90-5 **288847-91-6**
288847-92-7 288847-93-8 **288847-94-9** 288847-95-0
288847-96-1 288847-97-2 288847-98-3 288847-99-4 288848-00-0
288848-01-1 **288848-02-2** **288848-03-3**
288848-05-5
(hydrogen-absorbing **anode** containing Ti-Cr alloy powder having Ti-Ni alloy surface manufactured by nickel coating and heating)

IT 12683-48-6P
(hydrogen-absorbing **anode** containing Ti-Cr alloy powder having Ti-Ni alloy surface manufactured by nickel coating and heating)

IT 7440-02-0, Nickel, processes 13463-39-3, Nickel carbonyl
104709-35-5, Sumer S 780
(hydrogen-absorbing **anode** containing Ti-Cr alloy powder having Ti-Ni alloy surface manufactured by nickel coating and heating)

L52 ANSWER 12 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:691889 HCAPLUS
DOCUMENT NUMBER: 135:229387
TITLE: Battery with nonaqueous electrolyte and improved anode active material
INVENTOR(S): Inagaki, Hiroki; Takami, Norio
PATENT ASSIGNEE(S): Kabushiki Kaisha Toshiba, Japan
SOURCE: Eur. Pat. Appl., 12 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1134824	A2	20010919	EP 2001-302081 <--	20010307
EP 1134824	A3	20031029		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
US 2001046629	A1	20011129	US 2001-797883	20010305

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                                                   <--
    US 6686090          B2     20040203
    JP 2001332253       A      20011130   JP 2001-72061          20010314
                                                   <--
    JP 3648458          B2     20050518
    CN 1313645          A      20010919   CN 2001-111478         20010315
                                                   <--
PRIORITY APPLN. INFO.:                    JP 2000-72377       A  20000315
                                                   <--
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ED Entered STN: 21 Sep 2001

AB The development of a new anode material led to the provision of a battery with nonaq. electrolyte which has a combination of a high discharge capacity with excellent cycling characteristics. The battery with nonaq. electrolyte comprises: a cathode and an anode having an anode active material capable of occluding and releasing an alkali metal. The anode active material contains ≥1 element selected from the group consisting of Group 4B elements and Group 5B elements and has ≥1 **crystal structure** selected from the group consisting of BiF3 structure, Cu2MnAl structure, and AgAsMg structure. The anode active material contains ≥1 element selected from the group consisting of Al, Si, Ge, Sn, P, Sb, and Bi and has ≥1 **crystal structure** selected from the group consisting of BiF3 structure, Cu2MnAl structure, and AgAsMg structure.

IT **12423-44-8 60968-66-3 359783-12-3 359783-13-4 359783-14-5**
(battery with nonaq. electrolyte and improved anode active material)

RN 12423-44-8 HCAPLUS

CN Antimony, compd. with magnesium and nickel (1:1:1) (7CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Sb	1	7440-36-0
Ni	1	7440-02-0
Mg	1	7439-95-4

RN 60968-66-3 HCAPLUS

CN Antimony, compd. with copper and magnesium (1:1:1) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Cu	1	7440-50-8
Sb	1	7440-36-0
Mg	1	7439-95-4

RN 359783-12-3 HCAPLUS

CN Antimony, compd. with magnesium and nickel (1:1:2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Sb	1	7440-36-0
Ni	2	7440-02-0
Mg	1	7439-95-4

RN 359783-13-4 HCAPLUS
CN Antimony, compd. with cobalt and magnesium (1:2:1) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Co	2	7440-48-4
Sb	1	7440-36-0
Mg	1	7439-95-4

RN 359783-14-5 HCAPLUS
CN Antimony, compd. with cobalt and magnesium (1:1:1) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Co	1	7440-48-4
Sb	1	7440-36-0
Mg	1	7439-95-4

IC ICM H01M004-38
ICS H01M004-46; H01M004-48; H01M004-58
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56
IT **Battery anodes**
Secondary batteries
(battery with nonaq. electrolyte and improved anode active material)
IT 96-49-1, Ethylene carbonate 623-53-0, Ethyl methyl carbonate 7429-90-5, Aluminum, uses 7440-21-3, Silicon, uses 7440-31-5, Tin, uses 7440-36-0, Antimony, uses 7440-56-4, Germanium, uses 7440-69-9, Bismuth, uses 7723-14-0, Phosphorus, uses 11056-42-1 11118-07-3 12003-42-8 12023-54-0, Iron silicide (Fe3Si) 12032-71-2 12059-23-3 12133-96-9 12163-59-6, Manganese silicide (Mn3Si) 12190-79-3, Cobalt lithium oxide colio2 **12423-44-8** 12502-69-1 12526-54-4 12526-55-5 12534-03-1 21324-40-3, Lithium hexafluorophosphate **60968-66-3** 66590-17-8 75349-09-6 99787-36-7 105110-44-9 149571-46-0 149571-49-3 **359783-12-3 359783-13-4 359783-14-5** 359783-15-6 359783-16-7 359783-17-8, Antimony manganese nickel phosphide (Sb0.8MnNi2P0.2) 359783-18-9, Antimony cobalt manganese phosphide (Sb0.8Co2MnP0.2) 359783-19-0 359783-20-3 359783-21-4, Nickel tin titanium silicide (NiSn0.8TiSi0.2) 359783-22-5, Cobalt tin titanium silicide (CoSn0.8TiSi0.2) 359783-23-6 359783-24-7 359783-25-8 359783-26-9
(battery with nonaq. electrolyte and improved anode active material)

L52 ANSWER 13 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:559987 HCAPLUS
DOCUMENT NUMBER: 135:139827
TITLE: Hydrogen-absorbing alloy and secondary battery
INVENTOR(S): Hayashida, Hirotaka; Yamamoto, Masaaki; Kitayama, Hiroshi; Inada, Shusuke; Sakai, Isao; Kono, Tatsuoki; Yoshida, Hideki; Inaba, Takamichi; Kanda, Motoya

PATENT ASSIGNEE(S): Kabushiki Kaisha Toshiba, Japan
SOURCE: U.S., 46 pp., Cont.-in-part of U. S. Ser. No. 200,464.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 4
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
US 6268084	B1	20010731	US 1999-475037 <--		19991230
JP 11162459	A	19990618	JP 1997-329213 <--		19971128
JP 11162503	A	19990618	JP 1997-329214 <--		19971128
JP 3825548	B2	20060927			
JP 11162460	A	19990618	JP 1997-329216 <--		19971128
JP 3816653	B2	20060830			
US 6248475	B1	20010619	US 1998-200464 <--		19981127
US 2001041292	A1	20011115	US 2001-871941 <--		20010604
US 6703164	B2	20040309			
PRIORITY APPLN. INFO.:			JP 1997-329213 <--	A	19971128
			JP 1997-329214 <--	A	19971128
			JP 1997-329216 <--	A	19971128
			US 1998-200464 <--	A2	19981127
			US 1999-475037 <--	A3	19991230

ED Entered STN: 03 Aug 2001

AB There is provided a hydrogen-absorbing alloy comprising, as a principal phase, at least one kind of phase selected from the group consisting of a first phase having a hexagonal crystal system (excluding a phase having a CaCu5 type **crystal structure**) and a second phase having a rhombohedral crystal system, the hydrogen-absorbing alloy having a composition represented by the following general formula (1): R1-a-bMgaTbNiZ-X-Y-αM1XM2YMn60 wherein R is at least one kind of element selected from rare earth elements (which include Y), T is at least one element selected from the group consisting of Ca, Ti, Zr and Hf; M1 is at least one element selected from the group consisting of Co and Fe; M2 is at least one element selected from the group consisting of Al, Ga, Zn, Sn, Cu, Si, B, Nb, W, Mo, V, Cr, Ta, Li, P and S; and the atomic ratios of a, b, X, Y, α and Z are resp. a number satisfying the conditions of: $0.15 \leq a \leq 0.37$, $0 \leq b \leq 0.3$, $0 \leq X \leq 1.3$, $0 \leq Y \leq 0.5$, $0 \leq \alpha \leq 0.135$, and $2.5 \leq Z \leq 4.2$.

IT **352028-85-4 352028-87-6 352028-90-1**
352028-94-5 352028-97-8 352028-99-0
352029-06-2 352029-49-3 352029-53-9
(hydrogen-absorbing alloy and secondary battery)

RN 352028-85-4 HCAPLUS

CN Nickel alloy, base, Ni 60,La 34,Sn 3.8,Mg 1.9 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	60	7440-02-0
La	34	7439-91-0
Sn	3.8	7440-31-5
Mg	1.9	7439-95-4

RN 352028-87-6 HCAPLUS
CN Nickel alloy, base, Ni 57,La 21,Pr 13,Co 6.5,Mg 2.4,P 0.7 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	57	7440-02-0
La	21	7439-91-0
Pr	13	7440-10-0
Co	6.5	7440-48-4
Mg	2.4	7439-95-4
P	0.7	7723-14-0

RN 352028-90-1 HCAPLUS
CN Nickel alloy, base, Ni 59,La 28,Sn 8,Ce 2.8,Zn 1.5,Nd 0.5,Pr 0.3 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	59	7440-02-0
La	28	7439-91-0
Sn	8	7440-31-5
Ce	2.8	7440-45-1
Zn	1.5	7440-66-6
Nd	0.5	7440-00-8
Pr	0.3	7440-10-0

RN 352028-94-5 HCAPLUS
CN Nickel alloy, base, Ni 44,La 27,Co 23,Ce 4.2,Mg 1.6,Ca 0.5,Si 0.3 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	44	7440-02-0
La	27	7439-91-0
Co	23	7440-48-4
Ce	4.2	7440-45-1
Mg	1.6	7439-95-4
Ca	0.5	7440-70-2
Si	0.3	7440-21-3

RN 352028-97-8 HCAPLUS
CN Nickel alloy, base, Ni 64,La 28,Mg 2.6,Sn 2.6,Y 1.2,Ti 1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number

Ni	64	7440-02-0
La	28	7439-91-0
Mg	2.6	7439-95-4
Sn	2.6	7440-31-5
Y	1.2	7440-65-5
Ti	1	7440-32-6

RN 352028-99-0 HCAPLUS
CN Nickel alloy, base, Ni 63,La 28,Pr 6.6,Mg 2.1,Mn 0.4,Si 0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	63	7440-02-0
La	28	7439-91-0
Pr	6.6	7440-10-0
Mg	2.1	7439-95-4
Mn	0.4	7439-96-5
Si	0.1	7440-21-3

RN 352029-06-2 HCAPLUS
CN Nickel alloy, base, Ni 63,La 32,Y 2.2,Co 1.5,Mg 1.4,Sn 0.7 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	63	7440-02-0
La	32	7439-91-0
Y	2.2	7440-65-5
Co	1.5	7440-48-4
Mg	1.4	7439-95-4
Sn	0.7	7440-31-5

RN 352029-49-3 HCAPLUS
CN Nickel alloy, base, Ni 63,La 28,Nd 6.6,Mg 1.8,Mn 0.4,Si 0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	63	7440-02-0
La	28	7439-91-0
Nd	6.6	7440-00-8
Mg	1.8	7439-95-4
Mn	0.4	7439-96-5
Si	0.1	7440-21-3

RN 352029-53-9 HCAPLUS
CN Nickel alloy, base, Ni 61,La 31,Sn 2.9,Y 2.1,Co 1.4,Mg 1.3 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	61	7440-02-0
La	31	7439-91-0
Sn	2.9	7440-31-5
Y	2.1	7440-65-5

Co	1.4	7440-48-4
Mg	1.3	7439-95-4

IC ICM H01M004-58
INCL 429218200
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56
ST battery **anode** hydrogen absorbing alloy
IT **Battery anodes**
(hydrogen-absorbing alloy and secondary battery)
IT 1310-58-3, Potassium hydroxide, uses 1310-65-2, Lithium hydroxide 1310-73-2, Sodium hydroxide, uses 11113-74-9, Nickel hydroxide
226418-72-0 227623-56-5 348627-26-9 352028-73-0 352028-74-1
352028-75-2 352028-76-3 352028-77-4 352028-78-5 352028-79-6
352028-80-9 352028-81-0 352028-82-1 352028-83-2 352028-84-3
352028-85-4 352028-86-5 **352028-87-6** 352028-88-7
352028-89-8 **352028-90-1** 352028-91-2 352028-92-3
352028-93-4 **352028-94-5** 352028-95-6 352028-96-7
352028-97-8 352028-98-9 **352028-99-0** 352029-00-6
352029-01-7 352029-02-8 352029-03-9 **352029-06-2**
352029-08-4 352029-12-0 352029-15-3 352029-18-6 352029-19-7
352029-22-2 352029-24-4 352029-27-7 352029-31-3 352029-32-4
352029-34-6 352029-37-9 352029-38-0 352029-39-1 352029-41-5
352029-42-6 352029-43-7 352029-44-8 352029-46-0 352029-47-1
352029-48-2 **352029-49-3** 352029-50-6 352029-51-7
352029-52-8 **352029-53-9** 352029-54-0 352029-58-4
352029-60-8 352029-61-9 352029-62-0 352029-63-1 352029-65-3
352029-67-5 352029-68-6 352029-69-7 352029-71-1 352029-72-2
352029-73-3 352029-74-4 352029-75-5 352029-77-7 352029-78-8
352029-80-2 352029-81-3
(hydrogen-absorbing alloy and secondary battery)
REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L52 ANSWER 14 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:133987 HCAPLUS
DOCUMENT NUMBER: 134:181067
TITLE: Secondary lithium batteries capable of charging and discharging at high voltage
INVENTOR(S): Honbo, Akiko; Goto, Akihiro; Muranaka, Yasushi
PATENT ASSIGNEE(S): Hitachi, Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001052704	A	20010223	JP 1999-226078 <--	19990810
PRIORITY APPLN. INFO.:			JP 1999-226078 <--	19990810

ED Entered STN: 23 Feb 2001
AB The battery comprises an **anode**, Li salt-containing nonaq. electrolyte, and a cathode, consisting of ≥2 phases having different **lattice constant** and having hexagonal

and/or monoclinic **crystal structure** or layered and/or zigzagged **crystal structure.** The cathode active material may have composition formula LiwAvQxCoyO2 (A = Ge, Y, Si, Zr, and/or Ti; Q = Ni, Mn, Fe, and/or Al; $0 \le w \le 1.2$; $0.02 \le v \le 0.125$; $0.01 \le x \le 0.175$; $0.01 \le x/y \le 0.25$). The cathode active materials may also contain $LiAO_2$, Li_2AO_3, and/or AO_2 (A = Ge and/or Ti) as byproducts. The batteries are suitable for use in personal computers, handy phones, memory cards, liquid crystal displays, domestic electronic appliances, vehicles, medical apparatus, power storage systems, etc.

IT **326895-25-4P 326895-28-7P**
(secondary batteries with lithium mixed oxide cathodes for charging and discharging at high voltage)

RN 326895-25-4 HCAPLUS

CN Cobalt germanium iron lithium nickel zirconium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Zr	x	7440-67-7
Ge	x	7440-56-4
Co	x	7440-48-4
Ni	x	7440-02-0
Li	x	7439-93-2
Fe	x	7439-89-6

RN 326895-28-7 HCAPLUS

CN Aluminum cobalt germanium lithium nickel yttrium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Y	x	7440-65-5
Ge	x	7440-56-4
Co	x	7440-48-4
Ni	x	7440-02-0
Li	x	7439-93-2
Al	x	7429-90-5

IC ICM H01M004-58
ICS H01M004-02; H01M010-40

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

IT 134398-49-5P, Cobalt lithium titanium oxide ($Co_{0.9}LiTi_{0.1}O_2$) 191025-46-4P, Cobalt lithium nickel zirconium oxide 201534-12-5P, Lithium manganese zirconium oxide 244304-18-5P, Cobalt lithium nickel silicon oxide 244304-20-9P, Cobalt lithium nickel titanium oxide 244304-22-1P, Cobalt germanium lithium nickel oxide 244304-23-2P, Cobalt lithium nickel yttrium oxide 326894-99-9P, Cobalt germanium lithium oxide ($Co_{0.9}Ge_{0.1}LiO_2$) 326895-01-6P 326895-03-8P 326895-07-2P 326895-11-8P, Cobalt lithium yttrium oxide 326895-13-0P, Iron lithium silicon oxide 326895-14-1P, Cobalt germanium lithium manganese oxide 326895-16-3P, Cobalt germanium iron lithium oxide 326895-18-5P, Aluminum cobalt germanium lithium oxide 326895-20-9P 326895-22-1P 326895-24-3P **326895-25-4P** 326895-26-5P 326895-27-6P

326895-28-7P 326895-29-8P, Germanium lithium manganese nickel oxide 326895-30-1P 326895-31-2P 326895-32-3P 326895-33-4P 326895-34-5P 326895-35-6P 326895-36-7P 326895-37-8P 326895-38-9P 326895-39-0P 326895-40-3P 326895-41-4P
(secondary batteries with lithium mixed oxide cathodes for charging and discharging at high voltage)

L52 ANSWER 15 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:57502 HCAPLUS
DOCUMENT NUMBER: 134:165606
TITLE: Structure and properties of the MlNi5 system with tin substitution
AUTHOR(S): Lin, Qin; Zhao, Shuang; Zhu, Dajian; Chen, Ning
CORPORATE SOURCE: Department of Physical Chemistry, University of Science and Technology Beijing, Beijing, 100083, Peop. Rep. China
SOURCE: Solid State Ionics (**2000**), 136-137, 663-666
CODEN: SSIOD3; ISSN: 0167-2738
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 24 Jan 2001
AB The hydriding performance, electrochem. properties and structure of MlNi5-xSnx (x = 0-0.5) and LaNi5-xSnx (x = 0-0.2) hydrogen storage alloys were investigated by pressure-composition isotherms, electrochem. measurements, XRD and atomic parameters. The substitution of Ni by Sn leads to an increase of the unit cell volume and decrease of the electron concentration The unit cell volume increase decreases the plateau pressure and improves the hydride stability and charge-discharge cycle life. The main factor which influences the standard enthalpy of the hydriding reaction is the number of the outer orbit electrons and not the atomic size factor. With a small amount of tin substitution (such as Sn = 0.2), the cycle life increases by 52% (0.5C) and 42% (1.0C), but maximum discharge capacity decreases only by 3.0 and 3.5%, resp.
IT **142366-54-9 158146-17-9 325709-07-7 325709-12-4 325709-17-9 325709-21-5 325709-26-0**
(structure and properties of hydrogen storage MlNi5 system with tin substitution)
RN 142366-54-9 HCAPLUS
CN Nickel alloy, base, Ni 66,La 32,Sn 2.7 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	66	7440-02-0
La	32	7439-91-0
Sn	2.7	7440-31-5

RN 158146-17-9 HCAPLUS
CN Lanthanum, compd. with nickel and tin (1:4.8:0.2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Sn	0.2	7440-31-5
Ni	4.8	7440-02-0
La	1	7439-91-0

RN 325709-07-7 HCAPLUS
CN Nickel alloy, base, Ni 65,La 25,Nd 6.2,Sn 2.7,Pr 0.2,Ce 0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	65	7440-02-0
La	25	7439-91-0
Nd	6.2	7440-00-8
Sn	2.7	7440-31-5
Pr	0.2	7440-10-0
Ce	0.1	7440-45-1

RN 325709-12-4 HCAPLUS
CN Nickel alloy, base, Ni 63,La 25,Nd 6.1,Sn 5.3,Pr 0.2,Ce 0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	63	7440-02-0
La	25	7439-91-0
Nd	6.1	7440-00-8
Sn	5.3	7440-31-5
Pr	0.2	7440-10-0
Ce	0.1	7440-45-1

RN 325709-17-9 HCAPLUS
CN Nickel alloy, base, Ni 61,La 25,Sn 7.9,Nd 6,Ce 0.1,Pr 0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	61	7440-02-0
La	25	7439-91-0
Sn	7.9	7440-31-5
Nd	6	7440-00-8
Ce	0.1	7440-45-1
Pr	0.1	7440-10-0

RN 325709-21-5 HCAPLUS
CN Nickel alloy, base, Ni 59,La 24,Sn 10,Nd 5.9,Ce 0.1,Pr 0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	59	7440-02-0
La	24	7439-91-0
Sn	10	7440-31-5
Nd	5.9	7440-00-8
Ce	0.1	7440-45-1
Pr	0.1	7440-10-0

RN 325709-26-0 HCAPLUS
CN Nickel alloy, base, Ni 57,La 24,Sn 13,Nd 5.9,Ce 0.1,Pr 0.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	57	7440-02-0
La	24	7439-91-0
Sn	13	7440-31-5
Nd	5.9	7440-00-8
Ce	0.1	7440-45-1
Pr	0.1	7440-10-0

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56, **72**
ST hydrogen storage alloy nickel lanthanum tin; battery **anode** hydrogen storage alloy
IT **Battery anodes**
Crystal structure
Hydriding
Secondary batteries
(structure and properties of hydrogen storage MlNi5 system with tin substitution)
IT **142366-54-9 158146-17-9** 325709-03-3
325709-07-7 325709-12-4 325709-17-9
325709-21-5 325709-26-0
(structure and properties of hydrogen storage MlNi5 system with tin substitution)
REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L52 ANSWER 16 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2000:592487 HCAPLUS
DOCUMENT NUMBER: 133:195997
TITLE: Hydrogene storage alloy electrode and method for manufacturing the same
INVENTOR(S): Tsuji, Yoichiro; Yamamoto, Osamu; Toyoguchi, Yoshinori; Matsuda, Hiromu
PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan
SOURCE: Eur. Pat. Appl., 13 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1030392	A2	20000823	EP 2000-301151 <--	20000215
EP 1030392	A3	20020731		
EP 1030392	B1	20050817		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
US 6309779	B1	20011030	US 2000-502537 <--	20000211
CN 1264184	A	20000823	CN 2000-102334 <--	20000217
CN 1120534	B	20030903	CN 2000-102334 <--	20000217

PRIORITY APPLN. INFO.: JP 1999-38376 A 19990217
<--

ED Entered STN: 25 Aug 2000

AB A hydrogen storage alloy electrode having a high capacity and excellent cycle characteristics is made from particulate active material comprising a hydrogen storage alloy of body-centered cubic **crystal structure** or body-centered tetragonal **crystal structure.** The hydrogen storage alloy is represented by the general formula TiaM1bCrcM2dLe, wherein M1 is at least one element selected from the group consisting of Nb and Mo; M2 is at least one element selected from the group consisting of Mn, Fe, Co, Cu, V, Zn, Zr, Ag, Hf, Ta, W, Al, Si, C, N, P and B; L is at least one element selected from the group consisting of rare-earth elements and Y; $0.2 \le a \le 0.7$; $0.01 \le b \le 0.4$; $0.1 \le c \le 0.7$; $0 \le d \le 0.3$; $0 \le e \le 0.03$; and a+b+c+d+e = 1.0, and the particulate active material having a Ti-Ni system alloy phase in the surface portion thereof.

IT **288847-91-6P 288847-94-9P 288848-01-1P**
288848-02-2P 288848-03-3P 288848-05-5P
(hydrogene storage alloy electrode and method for its manufacturing)

RN 288847-91-6 HCAPLUS

CN Titanium alloy, base, Ti 45,Cr 34,Mo 13,La 5.2,Si 3.2 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ti	45	7440-32-6
Cr	34	7440-47-3
Mo	13	7439-98-7
La	5.2	7439-91-0
Si	3.2	7440-21-3

RN 288847-94-9 HCAPLUS

CN Titanium alloy, base, Ti 43,Cr 33,Mo 17,La 5,P 1.7 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ti	43	7440-32-6
Cr	33	7440-47-3
Mo	17	7439-98-7
La	5	7439-91-0
P	1.7	7723-14-0

RN 288848-01-1 HCAPLUS

CN Titanium alloy, base, Ti 40,Cr 32,Mo 18,La 5.2,Si 5.2 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ti	40	7440-32-6
Cr	32	7440-47-3
Mo	18	7439-98-7
La	5.2	7439-91-0
Si	5.2	7440-21-3

RN 288848-02-2 HCAPLUS

CN Titanium alloy, base, Ti 39,Cr 31,Mo 17,Fe 5.1,La 5,Si 2.5 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ti	39	7440-32-6
Cr	31	7440-47-3
Mo	17	7439-98-7
Fe	5.1	7439-89-6
La	5	7439-91-0
Si	2.5	7440-21-3

RN 288848-03-3 HCAPLUS
CN Titanium alloy, base, Ti 40,Cr 32,Mo 18,La 5.1,Si 4.1,Fe 2.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ti	40	7440-32-6
Cr	32	7440-47-3
Mo	18	7439-98-7
La	5.1	7439-91-0
Si	4.1	7440-21-3
Fe	2.1	7439-89-6

RN 288848-05-5 HCAPLUS
CN Titanium alloy, base, Ti 38,Cr 31,Mo 17,Fe 8,La 5,Si 1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ti	38	7440-32-6
Cr	31	7440-47-3
Mo	17	7439-98-7
Fe	8	7439-89-6
La	5	7439-91-0
Si	1	7440-21-3

IC ICM H01M004-38
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56
ST battery **anode** hydrogen storage alloy
IT **Battery anodes**
Mechanical alloying
Mechanochemical reaction
(hydrogene storage alloy electrode and method for its manufacturing)
IT 288847-66-5P 288847-67-6P 288847-68-7P 288847-69-8P
288847-70-1P 288847-71-2P 288847-72-3P 288847-73-4P
288847-74-5P 288847-75-6P 288847-77-8P 288847-79-0P
288847-80-3P 288847-81-4P 288847-82-5P 288847-83-6P
288847-84-7P 288847-85-8P 288847-86-9P 288847-87-0P
288847-88-1P 288847-89-2P 288847-90-5P **288847-91-6P**
288847-92-7P 288847-93-8P **288847-94-9P** 288847-95-0P
288847-96-1P 288847-97-2P 288847-98-3P 288847-99-4P
288848-00-0P **288848-01-1P 288848-02-2P**
288848-03-3P 288848-05-5P

(hydrogene storage alloy electrode and method for its manufacturing)

L52 ANSWER 17 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2000:6020 HCAPLUS
DOCUMENT NUMBER: 132:95671
TITLE: Advanced nanocrystalline Zr-based AB2 hydrogen storage electrode materials for NiMH EV batteries
AUTHOR(S): Chen, L.; Wu, F.; Tong, M.; Chen, D. M.; Long, R. B.; Shang, Z. Q.; Liu, H.; Sun, W. S.; Yang, K.; Wang, L. B.; Li, Y. Y.
CORPORATE SOURCE: Institute of Metal Research, Chinese Academy of Sciences, Shenyang, 110015, Peop. Rep. China
SOURCE: Journal of Alloys and Compounds (**1999**), 293-295, 508-520
CODEN: JALCEU; ISSN: 0925-8388
PUBLISHER: Elsevier Science S.A.
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 04 Jan 2000
AB The metallurgical microstructure, **crystal-structure** and electrochem. properties of Laves phase Zr-V-Mn-Ni system alloys (modified with Ti, Co, Sn, etc.) were investigated systematically in the present paper. Conventional polycryst. Zr-based alloys, which consist of cubic C15 Laves phase, hexagonal C14 Laves phase and non-Laves phase (such as Zr7Ni10, Zr9Ni11, Zr(NiMn)Sn0.35), show the highest discharge capacity of 342 mAh/g (at 60 mA/g charge-discharge current), which decreases by 7.8% after 300 cycles. Amorphous phase alloys in melt-spun alloys exhibit poor electrochem. properties. Advanced nanocryst. C15-Laves single-phase alloys were prepared by completely crystallizing the melt-spun amorphous Zr1-xTix[(NiVMnCo)1-ySny]2+α alloys. These alloys have a special microstructure composed of high-d. interface phase and random-oriented grains varying from several nanometers to several dozens of nanometers. It was found that these materials had high discharge capacity (the maximum capacity is up to 379 mAh g-1) and long cycle life (the capacity only decreases 3% after 300 cycles). The maximum discharge capacities were found in the metallurgical microstructure and **crystal-structure** in Zr-based AB2 alloys. The maximum discharge capacity increases in regular nanocryst./C15-Laves single-phase>polycryst./multi-phase (Laves and non-Laves)>comorphous state/C15-Laves single-phase. It was shown that the complete crystallization method from amorphous solids is an effective way to greatly improve the electrochem. performance of Zr-based AB2 hydrogen storage electrode materials, which is not only significant for academic research but also valuable for practical applications in the NiMH battery system for pure elec. vehicles (PEV) and hybrid elec. vehicles (HEV).
IT **255065-30-6 255065-31-7**
(nanocryst. Zr-based AB2 hydrogen storage electrode materials for NiMH EV batteries)
RN 255065-30-6 HCAPLUS
CN Zirconium alloy, base, Zr 45,Ni 25,Mn 17,V 7.5,Co 3.5,Sn 1.3 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Zr	45	7440-67-7
Ni	25	7440-02-0
Mn	17	7439-96-5
V	7.5	7440-62-2

Co	3.5	7440-48-4
Sn	1.3	7440-31-5

RN 255065-31-7 HCAPLUS
CN Zirconium alloy, base, Zr 43,Ni 27,Mn 16,V 7.3,Co 3.8,Sn 2.5 (9CI)
(CA INDEX NAME)

Component	Component Percent	Component Registry Number
Zr	43	7440-67-7
Ni	27	7440-02-0
Mn	16	7439-96-5
V	7.3	7440-62-2
Co	3.8	7440-48-4
Sn	2.5	7440-31-5

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56, **72**
IT **Battery anodes**
Crystal structure
Crystallinity
Secondary batteries
(nanocryst. Zr-based AB2 hydrogen storage electrode materials for NiMH EV batteries)
IT 255065-29-3 **255065-30-6** **255065-31-7** 255065-32-8
(nanocryst. Zr-based AB2 hydrogen storage electrode materials for NiMH EV batteries)
REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L52 ANSWER 18 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2000:5945 HCAPLUS
DOCUMENT NUMBER: 132:80850
TITLE: **Crystal structure** and protium absorption properties of La-rich La(Ni,M)x (x=3-4.7) (M=Al, Co, Mn, Si) melt-spun ribbons
AUTHOR(S): Okada, M.; Kuriiwa, T.; Tamura, T.; Kamegawa, A.; Takamura, H.
CORPORATE SOURCE: Department of Materials Science, Graduate School of Engineering, Tohoku University, Sendai, 980-8579, Japan
SOURCE: Journal of Alloys and Compounds (**1999**), 293-295, 130-134
CODEN: JALCEU; ISSN: 0925-8388
PUBLISHER: Elsevier Science S.A.
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 04 Jan 2000
AB The present study describes the rapid quenching effects on the solid-solution range of La(Ni, M)x (x=3-4.7) (M=Al, Co, Mn, Si) alloys prepared by melt-spinning and discusses their protium (hydrogen atom) absorption properties. It is found that the single phase with CaCu5 **crystal structure** extends to LaNi4.65 compositional alloys. When x in LaNi5-x becomes smaller, the alloy acquires better protium absorption properties including easier activation, better flatness of plateau region and a good hydrogen storage capacity comparable to those of LaNi5 homogenized sample. On adopting a

melt-spinning technique it is easy to form single phase of CaCu5 type-structure for La-rich non-stoichiometric La-Ni-M alloys such as La(Ni,M)x (x=3-4.7) (M=Al, Mn, Si) alloys. The readiness of forming a single phase CaCu5 type-structure in melt-spun La-Ni-M alloys is in order of Al≳Si>Mn>Co. The phases formed and protium absorption properties of La-rich LaNi4.5M0.2 melt-spun alloys are studied. It was found that LaNi4.5M0.2 alloys had better protium absorption properties such as easier activation than the LaNi4.65 binary alloy and as good hydrogen storage capacity as that of homogenized LaNi5.

IT **253882-95-0 253882-96-1 253882-97-2**
(**crystal structure** and protium absorption properties of La-rich La(Ni,M)x (x=3-4.7) (M=Al, Co, Mn, Si) melt-spun ribbons)

RN 253882-95-0 HCAPLUS
CN Nickel alloy, base, Ni 63,La 33,Ge 3.5 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	63	7440-02-0
La	33	7439-91-0
Ge	3.5	7440-56-4

RN 253882-96-1 HCAPLUS
CN Nickel alloy, base, Ni 65,La 34,Si 1.4 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	65	7440-02-0
La	34	7439-91-0
Si	1.4	7440-21-3

RN 253882-97-2 HCAPLUS
CN Nickel alloy, base, Ni 62,La 33,Sn 5.6 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	62	7440-02-0
La	33	7439-91-0
Sn	5.6	7440-31-5

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56

IT **Battery anodes**
Crystal structure-property relationship
(**crystal structure** and protium absorption properties of La-rich La(Ni,M)x (x=3-4.7) (M=Al, Co, Mn, Si) melt-spun ribbons)

IT Casting process
(spin; **crystal structure** and protium absorption properties of La-rich La(Ni,M)x (x=3-4.7) (M=Al, Co, Mn, Si) melt-spun ribbons)

IT 1333-74-0, Protium, processes
(anode alloys for storage of; **crystal structure** and protium absorption properties of La-rich La(Ni,M)x (x=3-4.7) (M=Al, Co, Mn, Si) melt-spun ribbons)

IT 62651-39-2 83899-54-1 83899-55-2 209053-17-8 217966-60-4

253882-86-9 253882-87-0 253882-88-1 253882-89-2 253882-90-5
253882-91-6 253882-92-7 253882-93-8 253882-94-9
253882-95-0 253882-96-1 253882-97-2
253882-98-3 253882-99-4
(**crystal structure** and protium absorption properties of La-rich La(Ni,M)x (x=3-4.7) (M=Al, Co, Mn, Si) melt-spun ribbons)

REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L52 ANSWER 19 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1999:654950 HCAPLUS
DOCUMENT NUMBER: 132:38047
TITLE: Non-stoichiometric AB5 type alloys and their properties as metal hydride electrodes
AUTHOR(S): Vogt, T.; Reilly, J. J.; Johnson, J. R.; Adzic, G. D.; McBreen, J.
CORPORATE SOURCE: Physics Department, Brookhaven National Laboratory, Upton, NY, 11973, USA
SOURCE: Materials Science Forum (**1999**), 315-317(Rare Earths '98), 94-104
CODEN: MSFOEP; ISSN: 0255-5476
PUBLISHER: Trans Tech Publications Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 14 Oct 1999

AB Nickel-metal hydride batteries (NiMH) are replacing nickel-cadmium batteries (NiCd) due to their higher energy d. and benign environmental impact. Furthermore, they are the first generation batteries for hybrid and elec. vehicles. Current AB5 electrodes necessarily contain expensive cobalt to obtain a reasonable cycle life. As a first step to eliminate Co as an alloy component the structure of LaNi3.55Co0.75Mn0.4Al0.3 was determined In order to definitively determine the site preference of cobalt a null scattering Ni alloy was prepared using appropriate Ni isotopes. In addition a new class of cobalt free non-stoichiometric La(NiSn)5+x alloys was identified which have cycle lives and storage capacities comparable to com. alloys containing 10 weight% cobalt.

IT **175553-28-3 220936-20-9 220936-21-0**
250330-13-3 250330-14-4 250330-68-8
(**crystal structure** of non-stoichiometric AB5 type alloys and their properties as metal hydride electrodes for secondary batteries)

RN 175553-28-3 HCAPLUS
CN Lanthanum, compd. with nickel and tin (1:4.7:0.3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Sn	0.3	7440-31-5
Ni	4.7	7440-02-0
La	1	7439-91-0

RN 220936-20-9 HCAPLUS
CN Nickel alloy, base, Ni 62,La 29,Sn 8.2 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number

Ni	62	7440-02-0
La	29	7439-91-0
Sn	8.2	7440-31-5

RN 220936-21-0 HCAPLUS
CN Nickel alloy, base, Ni 62,La 30,Sn 8.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	62	7440-02-0
La	30	7439-91-0
Sn	8.1	7440-31-5

RN 250330-13-3 HCAPLUS
CN Lanthanum, compd. with nickel and tin (0.96:4.78:0.31) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Sn	0.31	7440-31-5
Ni	4.78	7440-02-0
La	0.96	7439-91-0

RN 250330-14-4 HCAPLUS
CN Lanthanum, compd. with nickel and tin (0.98:4.71:0.31) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Sn	0.31	7440-31-5
Ni	4.71	7440-02-0
La	0.98	7439-91-0

RN 250330-68-8 HCAPLUS
CN Lanthanum, compd. with nickel and tin (0.98:4.74:0.31) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Sn	0.31	7440-31-5
Ni	4.74	7440-02-0
La	0.98	7439-91-0

IT **103662-87-9**
(non-stoichiometric AB5 type alloys and their properties as metal hydride electrodes for secondary batteries)
RN 103662-87-9 HCAPLUS
CN Nickel alloy, base, Ni 61,La 31,Sn 7.9 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	61	7440-02-0
La	31	7439-91-0
Sn	7.9	7440-31-5

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56, 75
ST **crystal structure** cobalt free secondary battery electrode
IT Battery electrodes
Crystal structure
Secondary batteries
(**crystal structure** of non-stoichiometric AB5 type alloys and their properties as metal hydride electrodes for secondary batteries)
IT 173355-11-8 **175553-28-3 220936-20-9 220936-21-0 250330-13-3 250330-14-4 250330-68-8**
(**crystal structure** of non-stoichiometric AB5 type alloys and their properties as metal hydride electrodes for secondary batteries)
IT **103662-87-9** 173355-11-8 252268-00-1
(non-stoichiometric AB5 type alloys and their properties as metal hydride electrodes for secondary batteries)
REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L52 ANSWER 20 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1999:439217 HCAPLUS
DOCUMENT NUMBER: 131:76196
TITLE: Hydrogen-absorbing alloy of ultra high capacity for electrode of secondary battery
INVENTOR(S): Lee, Jai-young; Lee, Han-ho; Lee, Ki-young; Jung, Jae-han; Kim, Dong-myung; Yu, Ji-sang
PATENT ASSIGNEE(S): Korea Advanced Institute of Science and Technology, S. Korea
SOURCE: U.S., 9 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
US 5922146	A	19990713	US 1996-761440 <--		19961206
KR 208652	B1	19990715	KR 1995-47762 <--		19951208
PRIORITY APPLN. INFO.:			KR 1995-47762 <--	A	19951208

ED Entered STN: 19 Jul 1999
AB A hydrogen-absorbing Ti alloy system is represented as the following general formula: TiAZrBVCMnDNiEMF, where M represents at least one metal selected from the group consisting of Cr, Co, Fe, Cu, Al, Si, Hf, Nb, Mo, and RE (where RE represents at least one metal selected from the group of rare earth elements consisting of La, Ce, Pr, Nd, and Sm); A,B,C,D,E, and F have atomic ratios ranging $0.2 \leq A \leq 0.35$, $0.03 \leq B \leq 0.15$, $0.15 \leq C \leq 0.4$, $0.8 \leq D \leq 0.2$, $0.13 \leq E \leq 0.35$, and $0 \leq F \leq 0.1$, resp, with the proviso that $A+B+C+D+E+F = 1$ and $A+B \leq 0.45$. The H absorbing Ti

alloy system of the invention, has similar mol. weight of 50-65 g/mol, C14-hexagonal crystalline structure of single phase, **lattice consts.** of a = 4.902-5.004 Å and c = 7.972-8.168 Å ultrahigh discharge capacity of 400 mA-h/g or more, which can be employed as an **anode** material of a Ni-MH secondary battery.

IT **228549-90-4**
(hydrogen-absorbing alloy of ultra high capacity for electrode of secondary battery)

RN 228549-90-4 HCAPLUS

CN Nickel alloy, base, Ni 29,Ti 24,V 20,Mn 14,Zr 12,Si 2.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	29	7440-02-0
Ti	24	7440-32-6
V	20	7440-62-2
Mn	14	7439-96-5
Zr	12	7440-67-7
Si	2.1	7440-21-3

IC ICM C22C030-00

INCL 148442000

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56

ST battery **anode** hydrogen absorbing alloy; titanium hydrogen absorbing alloy battery **anode**

IT **Battery anodes**
Secondary batteries
(hydrogen-absorbing alloy of ultra high capacity for electrode of secondary battery)

IT 178992-35-3 193818-91-6 228549-75-5 228549-76-6 228549-77-7
228549-78-8 228549-79-9 228549-80-2 228549-81-3 228549-82-4
228549-83-5 228549-84-6 228549-85-7 228549-86-8 228549-87-9
228549-89-1 **228549-90-4** 228549-91-5 228549-92-6
228549-93-7 228549-94-8 228549-95-9 228549-96-0 228549-97-1
228549-98-2 228549-99-3
(hydrogen-absorbing alloy of ultra high capacity for electrode of secondary battery)

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L52 ANSWER 21 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1999:311388 HCAPLUS
DOCUMENT NUMBER: 130:314419
TITLE: Metal hydride cells for high rate/low temperature performance
INVENTOR(S): Singh, Deepika B.; Zhang, Lianying; Klein, Michael R.; Puglisi, Vince; Demoully, Thomas R.; Prakash, Jai
PATENT ASSIGNEE(S): Eveready Battery Company, Inc., USA
SOURCE: PCT Int. Appl., 38 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

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PATENT NO.          KIND   DATE       APPLICATION NO.       DATE
---------------     ----   --------   --------------------  --------
WO 9923709           A2    19990514   WO 1998-US23320       19981102
                                             <--
WO 9923709           A3    19990708
    W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ,
        DE, DK, EE, ES, FI, GB, GE, GH, GM, HU, ID, IL, IS, JP, KE,
        KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN,
        MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ,
        TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD,
        RU, TJ, TM
    RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK,
        ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF,
        CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
US 2001009740        A1    20010726   US 1998-118660        19980717
                                             <--
US 6287724           B2    20010911
AU 9912993           A     19990524   AU 1999-12993         19981102
                                             <--
EP 1044476           A2    20001018   EP 1998-956474        19981102
                                             <--
EP 1044476           B1    20020724
    R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,
        PT, IE, FI
JP 2001522132        T     20011113   JP 2000-519475        19981102
                                             <--
AT 221255            T     20020815   AT 1998-956474        19981102
                                             <--
TW 412875            B     20001121   TW 1998-87118269      19981113
                                             <--
PRIORITY APPLN. INFO.:                US 1997-64681P     P  19971103
                                             <--
                                      US 1997-64682P     P  19971103
                                             <--
                                      US 1998-118660     A  19980717
                                             <--
                                      WO 1998-US23320    W  19981102
                                             <--
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ED Entered STN: 21 May 1999

AB A metal hydride rechargeable cell, such as a nickel hydride cell, is provided that discharges during a test discharge or initial operational discharge at a rate of 8-C to 18-C and a cell temperature of 0° wherein the voltage remains above 0.2 V during the half of the discharge curve. The cell comprises a **neg. electrode** of hydrogen storage alloy material having a particle size volume distribution whose d(50) value does not exceed 2(2Dht)1/2, where Dh is the hydrogen diffusion coefficient for the allow at 0° and t is a time period from about 200 to about 450 s. A process for manufacturing the cell according to the present invention involves an activation protocol comprising at least one formation cycle, a heat treating step, and a cycling step. The process avoids unnecessary processing of the metal alloy material prior to incorporation into the **neg. electrode.**

IT **103662-87-9**
(metal hydride batteries for high rate/low temperature performance)

RN 103662-87-9 HCAPLUS

CN Nickel alloy, base, Ni 61,La 31,Sn 7.9 (9CI) (CA INDEX NAME)

Component Component Component

	Percent	Registry Number
Ni	61	7440-02-0
La	31	7439-91-0
Sn	7.9	7440-31-5

IC ICM H01M
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56
IT **Battery anodes**
Secondary batteries
(metal hydride batteries for high rate/low temperature performance)
IT 11113-74-9, Nickel hydroxide **103662-87-9** 132543-58-9 156186-74-2
(metal hydride batteries for high rate/low temperature performance)

L52 ANSWER 22 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1999:172058 HCAPLUS
DOCUMENT NUMBER: 130:211692
TITLE: **Crystal structure** of nonstoichiometric La(Ni,Sn)5+x alloys and their properties as metal hydride electrodes
AUTHOR(S): Vogt, T.; Reilly, J. J.; Johnson, J. R.; Adzic, G. D.; McBreen, J.
CORPORATE SOURCE: Department of Physics, Brookhaven National Laboratory, Upton, NY, 11973-5000, USA
SOURCE: Electrochemical and Solid-State Letters (**1999**), 2(3), 111-114
CODEN: ESLEF6; ISSN: 1099-0062
PUBLISHER: Electrochemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 16 Mar 1999
AB Cobalt-free La(Ni,Sn)5+x alloys have been identified as low-cost, corrosion-resistant anodes for nickel-metal hydride batteries. The structures of these alloys are similar to nonstoichiometric La(Ni,Cu)5+x compds.; i.e., they retain the P6/mmm space group while Ni dumbbells occupy La sites. Anodes fabricated from some of these novel alloys have storage capacities and cycle lives equivalent to those made from com. battery-grade AB5 alloys.
IT **103662-87-9 220936-20-9 220936-21-0 220936-22-1**
(**crystal structure** of nonstoichiometric lanthanum-nickel-tin alloys and their properties as hydrogen-absorbing anodes for batteries)
RN 103662-87-9 HCAPLUS
CN Nickel alloy, base, Ni 61,La 31,Sn 7.9 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	61	7440-02-0
La	31	7439-91-0
Sn	7.9	7440-31-5

RN 220936-20-9 HCAPLUS
CN Nickel alloy, base, Ni 62,La 29,Sn 8.2 (9CI) (CA INDEX NAME)

Component Component Component

	Percent	Registry Number
Ni	62	7440-02-0
La	29	7439-91-0
Sn	8.2	7440-31-5

RN 220936-21-0 HCAPLUS
CN Nickel alloy, base, Ni 62,La 30,Sn 8.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	62	7440-02-0
La	30	7439-91-0
Sn	8.1	7440-31-5

RN 220936-22-1 HCAPLUS
CN Nickel alloy, base, Ni 61,La 30,Sn 8.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	61	7440-02-0
La	30	7439-91-0
Sn	8.1	7440-31-5

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56
ST lanthanum nickel tin nonstoichiometric alloy **crystal structure**; hydrogen absorbing lanthanum nickel tin alloy anode battery
IT **Battery anodes**
(**crystal structure** of nonstoichiometric lanthanum-nickel-tin alloys and their properties as hydrogen-absorbing anodes for batteries)
IT 184171-13-9
(**crystal structure** of aluminum-lanthanum-manganese-nickel alloy and its property as hydrogen-absorbing anodes for batteries)
IT 181147-99-9
(**crystal structure** of misch metal-nickel-based alloy and its property as hydrogen-absorbing anodes for batteries)
IT **103662-87-9 220936-20-9 220936-21-0 220936-22-1**
(**crystal structure** of nonstoichiometric lanthanum-nickel-tin alloys and their properties as hydrogen-absorbing anodes for batteries)
IT 1333-74-0, Hydrogen, uses
(**crystal structure** of nonstoichiometric lanthanum-nickel-tin alloys and their properties as hydrogen-absorbing anodes for batteries)
REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L52 ANSWER 23 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1999:72205 HCAPLUS
DOCUMENT NUMBER: 130:170706
TITLE: Lithium mixed oxide cathode active materials,

cathodes using the materials, and lithium batteries using them
INVENTOR(S): Amine, Khalil
PATENT ASSIGNEE(S): Japan Storage Battery Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 22 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
JP 11025983	A	19990129	JP 1997-215424 <--		19970704
US 6319632	B1	20011120	US 1999-448504 <--		19991124
US 2002039681	A1	20020404	US 2001-955906 <--		20010920
PRIORITY APPLN. INFO.:			JP 1997-215424 <--	A	19970704
			US 1999-448504 <--	A3	19991124

ED Entered STN: 03 Feb 1999

AB The active materials comprise LiM11-xM2xPO4 (M1 = Co, Ni, Mn; M2 = Mg, Fe, Ni, Co, Mn, Zn, Ge, Cu, Cr; x = 0-0.5) having the olivine structure. The materials, which may have a rhombic structure, may be (1) LiMnPO4 with lattice parameters of a = 6.11 ± 0.50 Å, b = 10.46 ± 0.50 Å, and c = 4.73 ± 0.50 Å, (2) LiNiPO4 with lattice parameters of a = 5.86 ± 0.50 Å, b = 10.07 ± 0.20 Å, c = 4.68 ± 0.50 Å, or (3) LiCoPO4 having lattice parameters of a = 5.92 ± 0.50 Å, b = 10.21 ± 0.50 Å, and c = 4.70 ± 0.50 Å. Cathodes using the materials and batteries using the cathodes, electrolyte solns., and **anode** active materials containing Li, Li alloys, LixSnO2, and C materials are also claimed. Li batteries with high energy d. and high voltage are obtained.

IT **220333-99-3P**, Lithium magnesium manganese phosphate (LiMg0-0.5Mn0.5-1(PO4)) **220334-06-5P**, Lithium magnesium nickel phosphate (LiMg0-0.5Ni0.5-1(PO4))
(Li mixed oxides of olivine structure as cathode active materials for high-energy-d. and high-voltage Li batteries)

RN 220333-99-3 HCAPLUS

CN Lithium magnesium manganese phosphate (LiMg0-0.5Mn0.5-1(PO4)) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O4P	1	14265-44-2
Mn	0.5 - 1	7439-96-5
Mg	0 - 0.5	7439-95-4
Li	1	7439-93-2

RN 220334-06-5 HCAPLUS

CN Lithium magnesium nickel phosphate (LiMg0-0.5Ni0.5-1(PO4)) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number

O4P	1	14265-44-2
Ni	0.5 - 1	7440-02-0
Mg	0 - 0.5	7439-95-4
Li	1	7439-93-2

IC ICM H01M004-58
ICS C01B025-45; H01M004-02; H01M010-40
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 75
IT **Battery anodes**
Battery cathodes
Battery electrolytes
(Li mixed oxides of olivine structure as cathode active materials for high-energy-d. and high-voltage Li batteries)
IT **Crystal structure types**
(rhombic; Li mixed oxides of olivine structure as cathode active materials for high-energy-d. and high-voltage Li batteries)
IT Lithium alloy
(**anode**; Li mixed oxides of olivine structure as cathode active materials for high-energy-d. and high-voltage Li batteries)
IT 13824-63-0P 13826-59-0P, Lithium manganese phosphate (LiMnPO4) 13977-83-8P, Lithium nickel phosphate (LiNiPO4) **220333-99-3P**, Lithium magnesium manganese phosphate (LiMg0-0.5Mn0.5-1(PO4)) 220334-01-0P, Lithium manganese nickel phosphate (LiMn0.5-1Ni0-0.5(PO4)) 220334-04-3P, Cobalt lithium manganese phosphate (Co0-0.5LiMn0.5-1(PO4)) 220334-05-4P, Iron lithium manganese phosphate (Fe0-0.5LiMn0.5-1(PO4)) **220334-06-5P**, Lithium magnesium nickel phosphate (LiMg0-0.5Ni0.5-1(PO4)) 220334-07-6P, Lithium manganese nickel phosphate (LiMn0-0.5Ni0.5-1(PO4)) 220334-08-7P, Cobalt lithium nickel phosphate (Co0-0.5LiNi0.5-1(PO4)) 220334-09-8P, Iron lithium nickel phosphate (Fe0-0.5LiNi0.5-1(PO4))
(Li mixed oxides of olivine structure as cathode active materials for high-energy-d. and high-voltage Li batteries)
IT 7439-93-2, Lithium, uses 7440-44-0, Carbon, uses 160479-36-7, Lithium tin oxide
(**anode**; Li mixed oxides of olivine structure as cathode active materials for high-energy-d. and high-voltage Li batteries)

L52 ANSWER 24 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1998:788806 HCAPLUS
DOCUMENT NUMBER: 130:54835
TITLE: Hydrogen absorbing anodes and metal oxide/hydrogen batteries
INVENTOR(S): Sakai, Isao; Yoshida, Hideki; Yamamoto, Masaaki; Kanda, Motoki
PATENT ASSIGNEE(S): Toshiba Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 24 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 10321223	A	19981204	JP 1997-234396 <--	19970829
US 6066415	A	20000523	US 1997-928033	19970911

<--
PRIORITY APPLN. INFO.: JP 1996-241897 A 19960912
<--
JP 1997-64932 A 19970318
<--

ED Entered STN: 16 Dec 1998

AB The anodes are composed of AB3 type H absorbing alloys R(Ni1-yMy) (R =Y containing rare earth elements; M = Al, Ga, Zn, Sn, Cu, Si, Ag, In, Ti, Zr, Hf, V, Nb, Ta, Cr, Fe, Mn, Mo, and/or W; 0.01 ≤y≤0.2, 2.5 ≤z ≤3.25), R(Ni1-x-yM1xM2y)z (M1 = Co, Mn, and/or Fe; M2 = M other than Mn and Fe; 0.01 ≤x ≤0.5), or R11-aR2a(Ni1-x-yM1xM3y)z (R1 = La, Ce, Pr,and/or Nd; R2 = Y, Er, Sm, Gd, Tb, Dy, Ho, Zr, Hf, and/or Ti; M3 = Al, Ga, Zn, Cu, Si, Sn, Ag, In, V, Nb, and/or Cr). Another type of the anodes are composed of an alloy R3(Ni1-bTb)z (R3 = rare earth, Y, Zr, Fr, and/or Ti; T = Co, Fe, Cu, Mn, Al, si, B, Sn, Ga, Ge, Zn, and/or Ag; d ≤0.9, 1.5 ≤z ≤4) containing a 1st phase having a CaCu5, Ce2Ni7, or Gd2Co7 type **crystalline** structure and a 2nd phase having an AlB2, CeCu2, Ni2In, CaIn2, Fe2P, and/or ThSi2 type **crystalline** structure, with Iii/Ii = 0.01-10, where Ii and Iii are the intensities of the strongest peaks of the 1st and 2nd phases on the Cu-Kα x ray diffraction pattern of the alloy.

IT **217468-69-4**
(compns. and **crystalline** structures of hydrogen absorbing alloys for battery anodes)

RN 217468-69-4 HCAPLUS

CN Nickel alloy, base, Ni 53,La 42,Sn 5.6 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	53	7440-02-0
La	42	7439-91-0
Sn	5.6	7440-31-5

IC ICM H01M004-38
ICS C22C019-00; H01M004-24; H01M010-30

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

IT **Battery anodes**
(compns. and **crystalline** structures of hydrogen absorbing alloys for battery anodes)

IT Rare earth metals, uses
(compns. and **crystalline** structures of hydrogen absorbing alloys for battery anodes)

IT 1333-74-0, Hydrogen, uses
(compns. and **crystalline** structures of hydrogen absorbing alloys for battery anodes)

IT 217468-67-2 217468-68-3 **217468-69-4** 217468-70-7
217468-71-8 217468-72-9 217468-73-0 217468-74-1 217468-75-2
217468-76-3 217468-77-4 217468-78-5 217468-79-6 217468-80-9
217468-81-0 217468-82-1 217468-83-2 217468-84-3 217468-85-4
217468-87-6 217468-88-7 217468-89-8 217468-90-1 217468-91-2
217468-92-3 217468-93-4 217468-94-5 217468-95-6 217468-96-7
217468-97-8 217468-98-9 217468-99-0 217469-00-6 217469-01-7
217469-02-8 217469-04-0 217469-05-1 217469-06-2 217469-07-3
217469-08-4 217469-09-5 217469-10-8 217469-11-9 217469-12-0
217469-13-1 217469-14-2 217469-15-3 217469-16-4 217469-17-5
217469-18-6 217469-19-7 217469-20-0 217469-21-1 217469-22-2
217469-23-3 217469-24-4 217469-25-5 217469-26-6 217469-27-7

217469-28-8 217469-29-9 217469-30-2 217469-31-3 217469-32-4
217469-33-5 217469-34-6 217469-35-7 217469-36-8 217469-37-9
217469-38-0 217469-39-1 217469-40-4 217469-41-5 217469-42-6
217469-43-7 217469-44-8 217469-45-9 217469-46-0 217469-47-1
217469-49-3 217469-50-6 217469-51-7 217469-52-8 217469-53-9
217469-54-0 217473-76-2 217473-77-3
(compns. and **crystalline** structures of hydrogen absorbing alloys for battery anodes)

L52 ANSWER 25 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1998:742748 HCAPLUS
DOCUMENT NUMBER: 130:54859
TITLE: Secondary lithium batteries having metal silicide anodes and showing excellent discharge performance at high current density
INVENTOR(S): Shimamura, Harunari; Okamura, kazuhiro; Arata, Yoshiaki
PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 10308208	A	19981117	JP 1997-117868 <--	19970508
PRIORITY APPLN. INFO.:			JP 1997-117868 <--	19970508

ED Entered STN: 23 Nov 1998

AB The batteries use anodes mainly containing XSi2 (X comprises A1 and A2; A1 is ≥1 selected from Fe, Co, and Ni; A2 is ≥1 selected from Mg, Ca, Sr, and Ba). By substituting a part (preferably 0.5-31 weight%) of transition metals in transition metal silicides (MSi2) with alkaline earth metals which have larger ionic radius than those of the transition metals, Li+ path in the silicide **crystals** is widened, and as the results, the batteries obtain improved discharge characteristics at high c.d.

IT **217077-72-0P**, Iron magnesium silicide (Fe0.99Mg0.01Si2)
217077-73-1P, Calcium iron silicide (Ca0.01Fe0.99Si2)
217077-75-3P, Iron strontium silicide (Fe0.99Sr0.01Si2)
217077-77-5P, Barium iron silicide (Ba0.01Fe0.99Si2)
217077-87-7P, Cobalt magnesium silicide (Co0.99Mg0.01Si2)
217077-93-5P, Calcium cobalt silicide (Ca0.01Co0.99Si2)
217077-98-0P, Cobalt strontium silicide (Co0.99Sr0.01Si2)
217078-02-9P, Barium cobalt silicide (Ba0.01Co0.99Si2)
217078-11-0P, Magnesium nickel silicide (Mg0.01Ni0.99Si2)
217078-15-4P, Calcium nickel silicide (Ca0.01Ni0.99Si2)
217078-20-1P, Nickel strontium silicide (Ni0.99Sr0.01Si2)
217078-25-6P, Barium nickel silicide (Ba0.01Ni0.99Si2)
(anodes; secondary Li batteries containing alkaline earth metal-substituted transition metal silicides as anodes)

RN 217077-72-0 HCAPLUS
CN Iron magnesium silicide (Fe0.99Mg0.01Si2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number

Si	2	7440-21-3
Mg	0.01	7439-95-4
Fe	0.99	7439-89-6

RN 217077-73-1 HCAPLUS
CN Calcium iron silicide (Ca0.01Fe0.99Si2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Ca	0.01	7440-70-2
Si	2	7440-21-3
Fe	0.99	7439-89-6

RN 217077-75-3 HCAPLUS
CN Iron strontium silicide (Fe0.99Sr0.01Si2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Sr	0.01	7440-24-6
Si	2	7440-21-3
Fe	0.99	7439-89-6

RN 217077-77-5 HCAPLUS
CN Barium iron silicide (Ba0.01Fe0.99Si2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Ba	0.01	7440-39-3
Si	2	7440-21-3
Fe	0.99	7439-89-6

RN 217077-87-7 HCAPLUS
CN Cobalt magnesium silicide (Co0.99Mg0.01Si2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Co	0.99	7440-48-4
Si	2	7440-21-3
Mg	0.01	7439-95-4

RN 217077-93-5 HCAPLUS
CN Calcium cobalt silicide (Ca0.01Co0.99Si2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Ca	0.01	7440-70-2
Co	0.99	7440-48-4
Si	2	7440-21-3

RN 217077-98-0 HCAPLUS
CN Cobalt strontium silicide (Co0.99Sr0.01Si2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number

Co	0.99	7440-48-4
Sr	0.01	7440-24-6
Si	2	7440-21-3

RN 217078-02-9 HCAPLUS
CN Barium cobalt silicide (Ba0.01Co0.99Si2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Co	0.99	7440-48-4
Ba	0.01	7440-39-3
Si	2	7440-21-3

RN 217078-11-0 HCAPLUS
CN Magnesium nickel silicide (Mg0.01Ni0.99Si2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Si	2	7440-21-3
Ni	0.99	7440-02-0
Mg	0.01	7439-95-4

RN 217078-15-4 HCAPLUS
CN Calcium nickel silicide (Ca0.01Ni0.99Si2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Ca	0.01	7440-70-2
Si	2	7440-21-3
Ni	0.99	7440-02-0

RN 217078-20-1 HCAPLUS
CN Nickel strontium silicide (Ni0.99Sr0.01Si2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Sr	0.01	7440-24-6
Si	2	7440-21-3
Ni	0.99	7440-02-0

RN 217078-25-6 HCAPLUS
CN Barium nickel silicide (Ba0.01Ni0.99Si2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Ba	0.01	7440-39-3
Si	2	7440-21-3
Ni	0.99	7440-02-0

IC ICM H01M004-02
ICS H01M004-58; H01M004-66; H01M010-40
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
IT **Battery anodes**
(secondary Li batteries containing alkaline earth metal-substituted

transition metal silicides as anodes)

IT **217077-72-0P**, Iron magnesium silicide (Fe0.99Mg0.01Si2) **217077-73-1P**, Calcium iron silicide (Ca0.01Fe0.99Si2) **217077-75-3P**, Iron strontium silicide (Fe0.99Sr0.01Si2) **217077-77-5P**, Barium iron silicide (Ba0.01Fe0.99Si2) 217077-80-0P, Iron silicide (Fe0.99Si2) **217077-87-7P**, Cobalt magnesium silicide (Co0.99Mg0.01Si2) **217077-93-5P**, Calcium cobalt silicide (Ca0.01Co0.99Si2) **217077-98-0P**, Cobalt strontium silicide (Co0.99Sr0.01Si2) **217078-02-9P**, Barium cobalt silicide (Ba0.01Co0.99Si2) 217078-06-3P, Cobalt silicide (Co0.99Si2) **217078-11-0P**, Magnesium nickel silicide (Mg0.01Ni0.99Si2) **217078-15-4P**, Calcium nickel silicide (Ca0.01Ni0.99Si2) **217078-20-1P**, Nickel strontium silicide (Ni0.99Sr0.01Si2) **217078-25-6P**, Barium nickel silicide (Ba0.01Ni0.99Si2)
(anodes; secondary Li batteries containing alkaline earth metal-substituted transition metal silicides as anodes)

L52 ANSWER 26 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1998:618116 HCAPLUS
DOCUMENT NUMBER: 129:205156
TITLE: Electrode characteristics of nanocrystalline AB compounds prepared by mechanical alloying
AUTHOR(S): Chen, Z.; Chen, Z.; Su, Y.; Lu, M.; Zhou, D.; Huang, P.
CORPORATE SOURCE: Institute of Non-Equilibrium Materials Science and Engineering, Central South University of Technology, Changsha, 410083, Peop. Rep. China
SOURCE: Materials Research Bulletin (**1998**), 33(10), 1449-1455
CODEN: MRBUAC; ISSN: 0025-5408
PUBLISHER: Elsevier Science Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English

ED Entered STN: 30 Sep 1998

AB Nanocryst. LaNi5 and LaNi4.5Si0.5 synthesized by mech. alloying were used as neg. materials for Ni-MH batteries. It was found that the electrodes prepared with the nanocryst. powders had similar discharge capacities, better activation behaviors, and longer cycle lifetimes, compared with the **neg. electrode** prepared with polycryst. coarse-grained LaNi5 alloy. The properties of the electrodes prepared with these nanocryst. materials were attributed to the structural characteristics of the compds. caused by mech. alloying.

IT **130470-03-0**
(electrode characteristics of nanocryst. AB compds. prepared by mech. alloying)

RN 130470-03-0 HCAPLUS

CN Nickel alloy, base, Ni 63,La 33,Si 3.4 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	63	7440-02-0
La	33	7439-91-0
Si	3.4	7440-21-3

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56

IT Battery anodes
Mechanical alloying
(electrode characteristics of nanocryst. AB compds. prepared by mech. alloying)
IT 54426-34-5 62651-39-2 73471-40-6 **130470-03-0**
(electrode characteristics of nanocryst. AB compds. prepared by mech. alloying)
REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L52 ANSWER 27 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1998:614499 HCAPLUS
DOCUMENT NUMBER: 129:278473
TITLE: Hydrogen-absorbing magnesium alloys, battery **anodes**, and secondary alkaline batteries
INVENTOR(S): Kono, Tatsuoki; Kamita, Motoki
PATENT ASSIGNEE(S): Toshiba Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 10251791	A	19980922	JP 1997-61386 <--	19970314
JP 3822306	B2	20060920		
PRIORITY APPLN. INFO.:			JP 1997-61386 <--	19970314

ED Entered STN: 29 Sep 1998
AB The title alloys have A2B-type **crystal structure**, e.g., CaF2, MgZn2, Mg2Cu, Mg2Ga, MgCu2, Fe2P, and are represented by formula Mg2-x(M11-yM2y)x, where M1 = Si, Ca, Cu, Ga, Ge, Sr, In, Sn, Ba, Tl, Pb, Th, and/or rare earth metals containing Y; M2 = elements having higher electronegativity than Mg (other than M1); -0.6 < x < 0.6; y = 0.01-0.8. Claimed **anodes** use the above alloys. Claimed batteries use the above **anodes**. The alloys have good chemical stability while absorbing H and absorption-desorption reversibility.
IT **213980-43-9 213980-46-2 213980-48-4**
213980-54-2 213980-69-9
(hydrogen-absorbing magnesium alloys having stability and reversibility for **anodes** of alkaline batteries)
RN 213980-43-9 HCAPLUS
CN Magnesium alloy, base, Mg 59,Si 27,Co 14 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Mg	59	7439-95-4
Si	27	7440-21-3
Co	14	7440-48-4

RN 213980-46-2 HCAPLUS
CN Tin alloy, base, Sn 61,Mg 27,V 7.5,Mn 4.1 (9CI) (CA INDEX NAME)

Component Component Component

Component	Component Percent	Component Registry Number
Sn	61	7440-31-5
Mg	27	7439-95-4
V	7.5	7440-62-2
Mn	4.1	7439-96-5

RN 213980-48-4 HCAPLUS
CN Magnesium alloy, base, Mg 56,Ni 30,Si 14 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Mg	56	7439-95-4
Ni	30	7440-02-0
Si	14	7440-21-3

RN 213980-54-2 HCAPLUS
CN Lanthanum alloy, base, La 70,Mg 27,Fe 2.8,Sn 0.7 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
La	70	7439-91-0
Mg	27	7439-95-4
Fe	2.8	7439-89-6
Sn	0.7	7440-31-5

RN 213980-69-9 HCAPLUS
CN Magnesium alloy, base, Mg 44,Y 40,Co 15,P 1.4 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Mg	44	7439-95-4
Y	40	7440-65-5
Co	15	7440-48-4
P	1.4	7723-14-0

IC ICM C22C023-00
ICS H01M004-24; H01M010-24
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56
ST hydrogen absorbing magnesium alloy **anode** battery
IT **Battery anodes**
(hydrogen-absorbing magnesium alloys having stability and reversibility for **anodes** of alkaline batteries)
IT 1333-74-0, Hydrogen, uses **213980-43-9** 213980-44-0
213980-45-1 **213980-46-2** 213980-47-3 **213980-48-4**
213980-49-5 213980-50-8 213980-51-9 213980-52-0 213980-53-1
213980-54-2 213980-55-3 213980-56-4 213980-57-5
213980-58-6 213980-59-7 213980-60-0 213980-61-1 213980-62-2
213980-63-3 213980-64-4 213980-65-5 213980-66-6 213980-67-7
213980-68-8 **213980-69-9** 213980-70-2 213980-71-3
213980-72-4
(hydrogen-absorbing magnesium alloys having stability and reversibility for **anodes** of alkaline batteries)

L52 ANSWER 28 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1998:352237 HCAPLUS
DOCUMENT NUMBER: 129:56538
TITLE: Hydrogen-absorbing alloys for battery anodes with high capacity and good cycle performance and their manufacture
INVENTOR(S): Yamamoto, Toru; Tsuji, Yoichiro; Toyoguchi, Yoshinori
PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 10147827	A	19980602	JP 1996-308170 <--	19961119
PRIORITY APPLN. INFO.:			JP 1996-308170 <--	19961119

ED Entered STN: 10 Jun 1998

AB The title alloys have the general formula MgMxNiy-x(M = Cr, Mo, W, V, Co, Fe, Cu, Pb, Ag, Al, Mn, Zn, Zr, In, Ga, Hf, Si, B, P, rare earth metal; x = 0.05-0.4, y = 0.5-2) and have amorphous alloy phases. Manufacture of the alloys is characterized by mech. alloying of Mg, Ni, and M in a ball mill under the condition of F/t (t = thickness of alloy layer on the surface of ball and pot; F = centrifugal force on the ball) 3 + 10-6 s2/g. Preferably, powders of highly **crystalline** carbon or Ni are adhered on powders of the alloys in inert gases under mech. stress by planetary ball mill, hybridization, or mechanofusion method. H-absorbing alloy electrodes made from the alloys or their hydrides, are also claimed.

IT **208596-80-9P 208596-82-1P**
(mech. alloying in manufacture of H-absorbing Mg-Ni-based amorphous alloys for battery anodes with high capacity and good cycle performance)

RN 208596-80-9 HCAPLUS
CN Nickel alloy, base, Ni 52,Mg 43,Si 5 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	52	7440-02-0
Mg	43	7439-95-4
Si	5	7440-21-3

RN 208596-82-1 HCAPLUS
CN Nickel alloy, base, Ni 52,Mg 43,P 5.5 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	52	7440-02-0
Mg	43	7439-95-4
P	5.5	7723-14-0

IC ICM C22C019-00
ICS C22C045-04; H01M004-24; H01M010-24

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56

IT **Battery anodes**
Mechanical alloying
(mech. alloying in manufacture of H-absorbing Mg-Ni-based amorphous alloys for battery anodes with high capacity and good cycle performance)

IT 77325-33-8P 90738-65-1P 208596-58-1P 208596-59-2P 208596-60-5P
208596-61-6P 208596-62-7P 208596-63-8P 208596-65-0P
208596-67-2P 208596-68-3P 208596-69-4P 208596-70-7P
208596-71-8P 208596-72-9P 208596-73-0P 208596-74-1P
208596-75-2P 208596-76-3P 208596-77-4P 208596-78-5P
208596-79-6P **208596-80-9P** 208596-81-0P
208596-82-1P 208596-83-2P
(mech. alloying in manufacture of H-absorbing Mg-Ni-based amorphous alloys for battery anodes with high capacity and good cycle performance)

L52 ANSWER 29 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1998:239734 HCAPLUS
DOCUMENT NUMBER: 128:310557
TITLE: Hydrogen-absorbing multiphase alloys, their manufacture, and nickel hydrogen secondary batteries using the alloys
INVENTOR(S): Sawa, Takao; Inaba, Takamichi; Kawashima, Fumiyuki
PATENT ASSIGNEE(S): Toshiba Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 10102174	A	19980421	JP 1996-259685 <--	19960930
PRIORITY APPLN. INFO.:			JP 1996-259685 <--	19960930

ED Entered STN: 27 Apr 1998

AB The H-absorbing alloys are represented as AaTbMc (A = La, Ce, Pr, Nd, and/or Y; T = Ni, Co, Fe, Cu, Mn, and/or Cr; M = Al, Si, Ga, Ge, Zn, Sn, In, and/or Sb; a = 20-70; b = 30-60; c = 10-40; a + b + c = 100) and they have plurality of phases of different **crystal structures**. The alloys are manufactured by quenching of AaTbMc to form, at least partially, nonequil. phases followed by heating. Secondary batteries using the alloys as **anodes** having enhanced capacitance and cycle life are also claimed.

IT **206657-08-1 206657-09-2**
(hydrogen-absorbing multiphase alloys for nickel hydrogen secondary battery **anodes**)

RN 206657-08-1 HCAPLUS

CN Lanthanum alloy, base, La 55,Ce 24,Ni 12,Fe 5.7,Al 2.8,Si 1.4 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
La	55	7439-91-0

Ce	24	7440-45-1
Ni	12	7440-02-0
Fe	5.7	7439-89-6
Al	2.8	7429-90-5
Si	1.4	7440-21-3

RN 206657-09-2 HCAPLUS
CN Cerium alloy, base, Ce 40,La 39,Ni 9,Cu 6.5,Si 2.9,Al 2.8 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ce	40	7440-45-1
La	39	7439-91-0
Ni	9	7440-02-0
Cu	6.5	7440-50-8
Si	2.9	7440-21-3
Al	2.8	7429-90-5

IC ICM C22C019-00
ICS C22C028-00; H01M004-38; H01M010-30
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56
ST hydrogen absorbing alloy secondary battery **anode**; multiphase hydrogen absorbing alloy battery; nickel hydrogen secondary battery **anode**
IT **Battery anodes**
Secondary batteries
(hydrogen-absorbing multiphase alloys for nickel hydrogen secondary battery **anodes**)
IT 206657-07-0 **206657-08-1** **206657-09-2** 206657-10-5
206657-11-6 206657-12-7 206657-13-8 206657-14-9 206657-15-0
206657-16-1 206657-17-2 206657-18-3 206657-19-4
(hydrogen-absorbing multiphase alloys for nickel hydrogen secondary battery **anodes**)

L52 ANSWER 30 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1998:239733 HCAPLUS
DOCUMENT NUMBER: 128:310556
TITLE: Hydrogen-absorbing multiphase alloys, their manufacture, and nickel hydrogen secondary batteries using the alloys
INVENTOR(S): Sawa, Takao; Kawashima, Fumiyuki; Sakamoto, Toshiya
PATENT ASSIGNEE(S): Toshiba Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 10102173	A	19980421	JP 1996-259684 <--	19960930
PRIORITY APPLN. INFO.:			JP 1996-259684 <--	19960930

ED Entered STN: 27 Apr 1998
AB The H-absorbing alloys are represented as AaRbTcMd (A = Ti, Zr, and/or Hf; R = La, Ce, Pr, Nd, and/or Y; T = Ni, Co, Fe, Cu, Mn, and/or Cr; M = Al, Si, Ga, Ge, Zn, Sn, In, and/or Sb; a = 30-70; b = 0-30; c = 10-60; d = 5-30; a + b + c + d = 100) having plurality of phases of different **crystal structures** or compns. and they are obtained by quenching of molten alloys. The alloys are manufactured by quenching of AaRbTcMd to, at least partially, form nonequil. phases followed by heating. Secondary batteries using the alloys as **anodes** having enhanced capacitance and cycle life are also claimed.
IT **206656-93-1 206656-94-2**
(multiphase hydrogen-absorbing alloys for nickel hydrogen secondary battery **anodes**)
RN 206656-93-1 HCAPLUS
CN Zirconium alloy, base, Zr 41,Hf 34,Ni 14,Fe 6.5,Al 3.1,Si 1.6 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Zr	41	7440-67-7
Hf	34	7440-58-6
Ni	14	7440-02-0
Fe	6.5	7439-89-6
Al	3.1	7429-90-5
Si	1.6	7440-21-3

RN 206656-94-2 HCAPLUS
CN Zirconium alloy, base, Zr 43,Ti 22,Ni 15,Cu 11,Si 4.8,Al 4.6 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Zr	43	7440-67-7
Ti	22	7440-32-6
Ni	15	7440-02-0
Cu	11	7440-50-8
Si	4.8	7440-21-3
Al	4.6	7429-90-5

IC ICM C22C019-00
ICS C22C014-00; C22C016-00; C22C027-00; H01M004-38; H01M010-30
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56
ST hydrogen absorbing alloy secondary battery **anode**; quenched molten alloy hydrogen absorbing; multiphase hydrogen absorbing alloy battery **anode**; nickel hydrogen secondary battery **anode**
IT **Battery anodes**
Secondary batteries
(multiphase hydrogen-absorbing alloys for nickel hydrogen secondary battery **anodes**)
IT 206656-92-0 **206656-93-1 206656-94-2** 206656-95-3 206656-96-4 206656-97-5 206656-98-6 206656-99-7 206657-00-3 206657-01-4 206657-02-5 206657-03-6
(multiphase hydrogen-absorbing alloys for nickel hydrogen secondary battery **anodes**)

L52 ANSWER 31 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1998:228688 HCAPLUS
DOCUMENT NUMBER: 128:246189
TITLE: Electrochemical behavior of mechanically alloyed Mg-Ni-based amorphous hydrogen storage alloys
AUTHOR(S): Wu, Yuming; Lei, Yongquan; Wu, Jing; Wang, Qidong
CORPORATE SOURCE: Zhejiang University, Hangzhou, 310027, Peop. Rep. China
SOURCE: Xiyou Jinshu Cailiao Yu Gongcheng (**1997**), 26(3), 26-29
CODEN: XJCGEA; ISSN: 1002-185X
PUBLISHER: Xiyou Jinshu Cailiao Yu Gongcheng Zazhishe
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
ED Entered STN: 23 Apr 1998
AB The electrochem. behaviors of amorphous Mg50Ni50-x-yMxNy (M, N=Co, Al and Si) hydrogen storage alloys prepared by mech. alloying (MA) were studied. The results showed that the MA amorphous alloys can be easily electrochem. activated and possess high electrochem. capacity. The MA Mg50Ni50 alloy has a maximum discharge capacity around 500 mA-h/g, which is ten times higher than those **crystalline** alloy. However, the chemical stabilities of the amorphous Mg50Ni50-x-yMxNy alloys are rather poor, and their capacities degrade at the rate of 10-60 mA h/g per cycle. XRD results revealed that high rate of capacity degradation of the amorphous Mg-Ni-based alloys is caused by oxidation of the magnesium in basic solution
IT **156499-44-4**
(electrochem. behavior of mech. alloyed Mg-Ni-based amorphous hydrogen storage alloys)
RN 156499-44-4 HCAPLUS
CN Nickel alloy, base, Ni 66,Mg 30,Si 3.5 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	66	7440-02-0
Mg	30	7439-95-4
Si	3.5	7440-21-3

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56
IT **Battery anodes**
Mechanical alloying
(electrochem. behavior of mech. alloyed Mg-Ni-based amorphous hydrogen storage alloys)
IT 153129-33-0, Magnesium 50, nickel 50 atomic 156499-43-3
156499-44-4 156499-45-5 156499-46-6
(electrochem. behavior of mech. alloyed Mg-Ni-based amorphous hydrogen storage alloys)

L52 ANSWER 32 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1998:198678 HCAPLUS
DOCUMENT NUMBER: 128:206798
TITLE: Investigations on synthesis, characterization and hydrogenation behavior of the spin- and thermal-melted versions of LaNi5-xSix (x=0.1, 0.3, 0.5) hydrogen storage materials
AUTHOR(S): Srivastava, Sumita; Srivastava, O. N.

CORPORATE SOURCE: Dep. Physics, Banaras Hindu Univ., Varanasi, 221005, India
SOURCE: Journal of Alloys and Compounds (**1998**), 267(1-2), 240-245
CODEN: JALCEU; ISSN: 0925-8388
PUBLISHER: Elsevier Science S.A.
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 08 Apr 1998

AB The present study deals with investigations on the synthesis and characterization of **neg. electrode** material for high energy d. Ni-MH battery. The hydrogen storage material (MH) has been synthesized through normal casting and melt-spinning techniques. In LaNi5/MmNi5 family various substitutions like Al, Mn, Co have been studied. The substitution of metalloid like Si is known to be very helpful in improving several hydrogenation properties. In the present study, the Si substituted versions of AB5-type storage materials typified by LaNi5-xSix (x=0.1, 0.3, 0.5) have been investigated. A comparison between the present material and the conventional AB5-type material MmNi4.3Al0.3Mn0.4 has also been made which has been previously studied. The main features revealed by XRD characterizations are the existence of the free Ni and Si together with AB5 material for all the three compns. These free Ni and Si were found to disappear and yield, giving rise to a singular material after hydrogenation. The melt-spun version of the material was found to grow invariably in a direction perpendicular to the c-axis. The kinetics and activation process was better for the melt-spun version of the LaNi4.7Si0.3 alloy than its thermally-melted counterpart (bulk) as well as to the alloy MmNi4.3Al0.3Mn0.4. For example, the kinetics of the melt-spun version of LaNi4.7Si0.3 is 60% faster than its bulk version and 70% faster than the melt-spun version of MmNi4.3Al0.3Mn0.4. Similarly, the melt-spun version of the alloy LaNi4.7Si0.3 gets activated in the 2nd cycle itself where as the alloy MmNi4.3Al0.3Mn0.4 attains this stage only in the 6th cycle.

IT **130470-03-0 145989-38-4 202932-36-3**
(synthesis, characterization and hydrogenation behavior of the spin- and thermal-melted versions of LaNi5-xSix hydrogen storage materials)

RN 130470-03-0 HCAPLUS
CN Nickel alloy, base, Ni 63,La 33,Si 3.4 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	63	7440-02-0
La	33	7439-91-0
Si	3.4	7440-21-3

RN 145989-38-4 HCAPLUS
CN Nickel alloy, base, Ni 65,La 33,Si 2 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	65	7440-02-0
La	33	7439-91-0
Si	2	7440-21-3

RN 202932-36-3 HCAPLUS
CN Nickel alloy, base, Ni 67,La 32,Si 0.7 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	67	7440-02-0
La	32	7439-91-0
Si	0.7	7440-21-3

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56

IT **Battery anodes**
(synthesis, characterization and hydrogenation behavior of the spin- and thermal-melted versions of LaNi5-xSix hydrogen storage materials)

IT **130470-03-0 145989-38-4 202932-36-3**
(synthesis, characterization and hydrogenation behavior of the spin- and thermal-melted versions of LaNi5-xSix hydrogen storage materials)

REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L52 ANSWER 33 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1997:293662 HCAPLUS
DOCUMENT NUMBER: 126:280218
TITLE: Nonaqueous battery and anode for battery
INVENTOR(S): Saito, Akihiko; Aono, Yasuhisa; Horiba, Tatsuo; Kodama, Hideyo; Dozono, Toshinori; Inagaki, Masahisa
PATENT ASSIGNEE(S): Hitachi, Ltd., Japan
SOURCE: Fr. Demande, 42 pp.
CODEN: FRXXBL
DOCUMENT TYPE: Patent
LANGUAGE: French
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
FR 2735285	A1	19961213	FR 1996-7281 <--		19960612
FR 2735285	B1	19990226			
JP 09063651	A	19970307	JP 1996-134672 <--		19960529
CA 2178675	A1	19961213	CA 1996-2178675 <--		19960610
CA 2178675	C	20001212			
US 5770333	A	19980623	US 1996-660764 <--		19960610
PRIORITY APPLN. INFO.:			JP 1995-144780 <--	A	19950612
			JP 1996-134672 <--	A	19960529

ED Entered STN: 08 May 1997

AB The nonaq. battery contains a pos. electrode, a **neg. electrode** reversibly absorbing an alkali metal, and a nonaq. electrolyte. A discharging capacity of the **neg. electrode** is 100-2500 mA-h/cm3 during a period beginning from the moment of the discharge start at 0.5 mA/cm2 and ending at the

moment when the voltage between the **neg. electrode** and pos. electrode is 1.0 V. The battery has a charge capacity of 380-1400 mA-h/g. The **neg. electrode** consists of an intermetallic compound containing ≥1 element from a Group IVB, P, and Sb. The intermetallic compound has 1 of the CaF2-, ZnS-, and AlLiSi-type structure. The CaF2 structure is an inverse fluorspar structure or fluorspar structure having a lattice constant of >6.36 Å.

IT **12423-44-8 60968-66-3**, Copper magnesium antimonide (CuMgSb)
(in lithium-intermetallic anode for battery)

RN 12423-44-8 HCAPLUS

CN Antimony, compd. with magnesium and nickel (1:1:1) (7CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Sb	1	7440-36-0
Ni	1	7440-02-0
Mg	1	7439-95-4

RN 60968-66-3 HCAPLUS

CN Antimony, compd. with copper and magnesium (1:1:1) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Cu	1	7440-50-8
Sb	1	7440-36-0
Mg	1	7439-95-4

IC ICM H01M010-24

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

IT **Battery anodes**
(for lithium secondary battery)

IT **Secondary batteries**
(lithium, nonaq.; lithium-intermetallic anode for)

IT 1310-52-7, Magnesium germanide (Mg2Ge) 1312-41-0, Indium antimonide (InSb) 1313-08-2 7439-93-2, Lithium, uses 12017-12-8, Cobalt silicide (CoSi2) 12032-53-0 12063-98-8, Gallium phosphide (GaP), uses 12064-03-8, Gallium antimonide (GaSb) 12201-89-7, Nickel silicide (NiSi2) **12423-44-8** 20859-73-8, Aluminum phosphide (AlP) 22398-80-7, Indium phosphide (InP), uses 25152-52-7, Aluminum antimonide (AlSb) , 53095-77-5, Magnesium silicide (MgSi2) **60968-66-3**, Copper magnesium antimonide (CuMgSb) 102257-73-8
(in lithium-intermetallic anode for battery)

L52 ANSWER 34 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1996:582559 HCAPLUS
DOCUMENT NUMBER: 125:226479
TITLE: Electrochemical evaluation of LaNi5-xGex metal hydride alloys
AUTHOR(S): Witham, C.; Ratnakumar, B. V.; Bowman, R. C., Jr.; Hightower, A.; Fultz, B.
CORPORATE SOURCE: Div. Eng. Applied Sci., California Inst. Technol., Pasadena, CA, 91125, USA
SOURCE: Journal of the Electrochemical Society (

1996), 143(9), L205-L208
CODEN: JESOAN; ISSN: 0013-4651
PUBLISHER: Electrochemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 30 Sep 1996

AB We report a detailed evaluation of Ge-substituted LaNi5 for electrochem. application as a **neg. electrode** in alkaline rechargeable cells. Alloys with small substitutions of Ge for Ni show operating pressures, chargeability, cyclic lifetime, and kinetics for hydrogen absorption and desorption all superior to those found in many other substituted LaNi5 alloys. These improved properties were achieved with a minimal reduction in hydrogen storage capacity.

IT **158146-17-9 182001-56-5 182001-63-4**
(electrochem. evaluation of LaNi5-xGex metal hydride alloys)

RN 158146-17-9 HCAPLUS
CN Lanthanum, compd. with nickel and tin (1:4.8:0.2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Sn	0.2	7440-31-5
Ni	4.8	7440-02-0
La	1	7439-91-0

RN 182001-56-5 HCAPLUS
CN Germanium, compd. with lanthanum and nickel (0.4:1:4.6) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Ge	0.4	7440-56-4
Ni	4.6	7440-02-0
La	1	7439-91-0

RN 182001-63-4 HCAPLUS
CN Germanium, compd. with lanthanum and nickel (0.3:1:4.7) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Ge	0.3	7440-56-4
Ni	4.7	7440-02-0
La	1	7439-91-0

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56, **72**

IT **Anodes**
(**battery**, electrochem. evaluation of LaNi5-xGex metal hydride alloys)

IT **158146-17-9 182001-56-5 182001-63-4**
182001-69-0
(electrochem. evaluation of LaNi5-xGex metal hydride alloys)

L52 ANSWER 35 OF 41 HCAPLUS
ACCESSION NUMBER: 1996:161025 HCAPLUS
DOCUMENT NUMBER: 124:237115

TITLE: AB5 metal hydride alloys for alkaline rechargeable cells
AUTHOR(S): Witham, C. K.; Bowman, R. C. Jr.; Ratnakumar, B. V.; Fultz, B.; Surampudi, S.
CORPORATE SOURCE: California Institute Technology, Pasadena, CA, 91125, USA
SOURCE: Annual Battery Conference on Applications and Advances, 11th, Long Beach, Calif., Jan. 9-12, 1996 (**1996**), 129-34. Institute of Electrical and Electronics Engineers: New York, N. Y.
CODEN: 62LEAL
DOCUMENT TYPE: Conference
LANGUAGE: English
ED Entered STN: 19 Mar 1996
AB A variety of metal elements were partially substituted at 3.3 atomic% for Ni in LaNi5. X-ray diffraction was performed to find the lattice parameters of each material and to determine the average grain size and lattice strain induced by hydrogen activation. **Neg. electrodes** were made of each material and were cycled in alkaline rechargeable cells to determine the effect of the metal atom substituent on the battery cyclic lifetime.
IT **158146-17-9 174661-13-3 174661-14-4 174661-17-7**
(lanthanum-nickel-metal hydride alloys for alkaline rechargeable cells)
RN 158146-17-9 HCAPLUS
CN Lanthanum, compd. with nickel and tin (1:4.8:0.2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Sn	0.2	7440-31-5
Ni	4.8	7440-02-0
La	1	7439-91-0

RN 174661-13-3 HCAPLUS
CN Nickel alloy, base, Ni 66,La 33,Si 1.3 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	66	7440-02-0
La	33	7439-91-0
Si	1.3	7440-21-3

RN 174661-14-4 HCAPLUS
CN Nickel alloy, base, Ni 65,La 32,Ge 3.3 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	65	7440-02-0
La	32	7439-91-0
Ge	3.3	7440-56-4

RN 174661-17-7 HCAPLUS
CN Nickel alloy, base, Ni 63,La 31,Sb 5.5 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number

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=========+============+==============
    Ni         63            7440-02-0
    La         31            7439-91-0
    Sb          5.5          7440-36-0
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CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56

IT **Anodes**
(**battery**, hydrogen-absorbing; lanthanum-nickel-metal hydride alloys for alkaline rechargeable cells)

IT 12196-72-4 73063-91-9 **158146-17-9** **174661-13-3** **174661-14-4** 174661-15-5 174661-16-6 **174661-17-7**
(lanthanum-nickel-metal hydride alloys for alkaline rechargeable cells)

L52 ANSWER 36 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1995:357550 HCAPLUS
DOCUMENT NUMBER: 122:165434
TITLE: The surface of intermetallic hydride electrodes
AUTHOR(S): Schlapbach, Louis; Meli, Felix; Zuettel, Andreas
CORPORATE SOURCE: Solid State Phys. Group, Univ. Freibourg, Fribourg, CH-1700, Switz.
SOURCE: Proceedings - Electrochemical Society (**1994**), 94-27(Hydrogen and Metal Hydride Batteries), 102-10.
CODEN: PESODO; ISSN: 0161-6374
PUBLISHER: Electrochemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

ED Entered STN: 16 Feb 1995

AB Powder grains of hydrogen storing intermetallic compds. compacted to **neg. electrodes** in alkaline electrolyte should be functional materials with bulk properties providing high H concentration and mobility at a very low price and surface properties which guarantee long cyclic life at high exchange c.d. Results of XPS studies of AB5 and AB2 type intermetallic electrodes after various chemical and electrochem. pretreatments are presented. Activated electrodes with high exchange c.d. are characterized by a high content of metallic Ni in the surface region. Results are given for various LaNi5-type and ZrVxNi2-x electrodes by electrochem. cycling and surface anal.

IT **130470-03-0**
(surface of intermetallic hydride electrodes)

RN 130470-03-0 HCAPLUS

CN Nickel alloy, base, Ni 63,La 33,Si 3.4 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	63	7440-02-0
La	33	7439-91-0
Si	3.4	7440-21-3

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56

IT **Anodes**
(**battery**, surface of intermetallic hydride electrodes)

IT 12196-72-4 76598-35-1 82089-05-2 **130470-03-0** 161374-63-6 161374-64-7
(surface of intermetallic hydride electrodes)

L52 ANSWER 37 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1995:299891 HCAPLUS
DOCUMENT NUMBER: 122:60156
TITLE: Hydrogen storage alloy for alkaline battery **anodes**
INVENTOR(S): Yamamura, Yasuharu; Seri, Hajime; Tsuji, Yoichiro; Owada, Naoko; Iwaki, Tsutomu
PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan
SOURCE: Eur. Pat. Appl., 21 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 621647	A1	19941026	EP 1994-105990 <--	19940418
EP 621647	B1	19980225		
R: DE, FR, GB, NL				
JP 07003365	A	19950106	JP 1994-20995 <--	19940218
US 5532076	A	19960702	US 1994-219697 <--	19940329
PRIORITY APPLN. INFO.:			JP 1993-92865 A <--	19930420

ED Entered STN: 19 Jan 1995
AB The alloy is Zr1.2-aTiaMnvAlwNixMyCrz, where M is ≥1 element selected from Si, Zn, Sn, Fe, Mo, Cu and Co; a = 0.1-<1.2, v = 0.4-1.2, 0 <w ≤0.3, x = 0.8-1.6, y ≤0.2, z ≤0.3, and (v + w + x + y + z) = 1.7-2.7. The alloy has ≥1 of a C14-type Laves phase of a **crystal structure** similar to that of MgZn2 and a C15-type Laves phase of a **crystal structure** similar to that of MgCu2 as a main alloy phase.
IT **160285-51-8P 160285-53-0P 160285-61-0P 160285-63-2P**
(hydrogen storage alloy for alkaline battery **anodes**)
RN 160285-51-8 HCAPLUS
CN Zirconium alloy, base, Zr 35,Ni 34,Mn 18,Ti 9.2,Al 2.6,Si 1.3 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Zr	35	7440-67-7
Ni	34	7440-02-0
Mn	18	7439-96-5
Ti	9.2	7440-32-6
Al	2.6	7429-90-5
Si	1.3	7440-21-3

RN 160285-53-0 HCAPLUS
CN Zirconium alloy, base, Zr 33,Ni 32,Mn 18,Ti 8.8,Sn 5.4,Al 2.5 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number

Zr	33	7440-67-7
Ni	32	7440-02-0
Mn	18	7439-96-5
Ti	8.8	7440-32-6
Sn	5.4	7440-31-5
Al	2.5	7429-90-5

RN 160285-61-0 HCAPLUS
CN Zirconium alloy, base, Zr 34,Ni 33,Mn 18,Ti 9,Cr 2.4,Al 1.9,Si 1.3 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Zr	34	7440-67-7
Ni	33	7440-02-0
Mn	18	7439-96-5
Ti	9	7440-32-6
Cr	2.4	7440-47-3
Al	1.9	7429-90-5
Si	1.3	7440-21-3

RN 160285-63-2 HCAPLUS
CN Zirconium alloy, base, Zr 33,Ni 32,Mn 17,Ti 8.6,Sn 5.3,Cr 2.3,Al 1.8 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Zr	33	7440-67-7
Ni	32	7440-02-0
Mn	17	7439-96-5
Ti	8.6	7440-32-6
Sn	5.3	7440-31-5
Cr	2.3	7440-47-3
Al	1.8	7429-90-5

IC ICM H01M004-38
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56
ST hydrogen storage alloy battery **anode**; titanium manganese aluminum alloy hydrogen; nickel chromium titanium alloy hydrogen
IT **Anodes**
(**battery**, alloy for hydrogen alkaline)
IT 1333-74-0, Hydrogen, uses
(alloy for alkaline battery **anodes** of)
IT 160285-46-1P 160285-47-2P 160285-48-3P 160285-49-4P
160285-50-7P **160285-51-8P** 160285-52-9P
160285-53-0P 160285-54-1P 160285-55-2P 160285-56-3P
160285-57-4P 160285-58-5P 160285-59-6P 160285-60-9P
160285-61-0P 160285-62-1P **160285-63-2P**
160285-64-3P 160285-65-4P 160285-66-5P 160285-67-6P
(hydrogen storage alloy for alkaline battery **anodes**)

L52 ANSWER 38 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1994:615745 HCAPLUS
DOCUMENT NUMBER: 121:215745
TITLE: Electrochemical evaluation of La-Ni-Sn metal

hydride alloys

AUTHOR(S): Ratnakumar, B. V.; Witham, C.; Fultz, B.; Halpert, G.
CORPORATE SOURCE: Jet Propulsion Lab., California Inst. Technol., Pasadena, CA, 91109, USA
SOURCE: Journal of the Electrochemical Society (**1994**), 141(8), L89-L91
CODEN: JESOAN; ISSN: 0013-4651
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 29 Oct 1994
AB A detailed electrochem. evaluation of Sn-modified LaNi5 was performed to evaluate its performance as a **neg. electrode** in alkaline rechargeable cells. Substituting small amts. of Sn for Ni provides a large improvement in the initial capacity and cycle lifetime of the electrode, and also serves to improve the kinetics of hydrogen absorption-desorption processes.
IT **158146-17-9**
(charge-discharge behavior of electrodes of)
RN 158146-17-9 HCAPLUS
CN Lanthanum, compd. with nickel and tin (1:4.8:0.2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Sn	0.2	7440-31-5
Ni	4.8	7440-02-0
La	1	7439-91-0

CC 72-2 (**Electrochemistry**)
Section cross-reference(s): **52**, 66, 67
IT **Anodes**
Electrodes
(**battery**, lanthanum-nickel and tin-modified lanthanum-nickel)
IT 12196-72-4, Lani5 62651-39-2, Lanthanum 16.7, nickel 83.3 (atomic)
158146-17-9
(charge-discharge behavior of electrodes of)

L52 ANSWER 39 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1989:98867 HCAPLUS
DOCUMENT NUMBER: 110:98867
TITLE: Hydrogen-storage **anodes** and their preparation
INVENTOR(S): Gamo, Takaharu; Moriwaki, Yoshio; Iwaki, Tsutomu
PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan
SOURCE: Eur. Pat. Appl., 31 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 293660	A2	19881207	EP 1988-107839 <--	19880516
EP 293660	A3	19890816		
EP 293660	B1	19930616		
R: DE, FR, GB				

JP 63284758	A	19881122	JP 1987-119411 <--		19870515
JP 01035863	A	19890206	JP 1987-190698 <--		19870730
JP 06050633	B	19940629			
JP 01048370	A	19890222	JP 1987-205683 <--		19870819
JP 06050634	B	19940629			
JP 01060961	A	19890308	JP 1987-216898 <--		19870831
JP 08021379	B	19960304			
JP 01102855	A	19890420	JP 1987-258889 <--		19871014
JP 3123049	B2	20010109			
PRIORITY APPLN. INFO.:			JP 1987-119411 <--	A	19870515
			JP 1987-190698 <--	A	19870730
			JP 1987-205683 <--	A	19870819
			JP 1987-216898 <--	A	19870831
			JP 1987-258889 <--	A	19871014

ED Entered STN: 17 Mar 1989

AB A H-storage **anode** comprises an alloy MM'a, where M is Zr, Ti, Hf, Ta, Y, Ca, Mg, La, Ce, Pr, Mm, Nb, Nd, Mo, Al and/or Si; M' is Ni, V, Cr, Mn, Fe, Co, Cu, Zn, Al, Si, Nb, Mo, W, Mg, Ca, Y, Ta, Pd, Ag, Au, Cd, In, Sn, Bi, La, Ce, and/or Mm (Mm is a mixture of rare earth elements, Pr, Nd, Th, and Sm); M and M' are different from each other; and a = 1.0-2.5. The alloy has an alloy phase which is substantially a Laves phase of an M-M' intermetallic compound, and has a **crystal structure** of hexagonally sym. C14 type having crystal **lattice consts.** a = 4.8-5.2 Å and c = 7.9-8.3 Å, and/or a cubically sym. C15 type having a crystal **lattice constant** of 6.92-7.70 Å. The **anode** is prepared by forming a dispersion of the alloy powder in a resin-binder solution containing a conducting material or a sintering aid, applying the dispersion to a conductive grid, and vacuum drying the coated grid when the dispersion contains a conducting material or sintering the grid when the dispersion contains a sintering aid. Secondary batteries using the invention **anodes** have a high capacity and long cycle life.

IT **119317-09-8 119317-10-1 119317-23-6**
119317-57-6 119317-68-9 119317-69-0
(hydrogen-absorbing, **anodes**, for batteries)

RN 119317-09-8 HCAPLUS

CN Zirconium alloy, base, Zr 45,Ni 43,V 10,Si 1.4 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Zr	45	7440-67-7
Ni	43	7440-02-0
V	10	7440-62-2
Si	1.4	7440-21-3

RN 119317-10-1 HCAPLUS

CN Zirconium alloy, base, Zr 43,Ni 42,V 9.6,Sn 5.6 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Zr	43	7440-67-7
Ni	42	7440-02-0
V	9.6	7440-62-2
Sn	5.6	7440-31-5

RN 119317-23-6 HCAPLUS
CN Tin alloy, base, Sn 60,Zr 28,Ni 11,V 0.7 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Sn	60	7440-31-5
Zr	28	7440-67-7
Ni	11	7440-02-0
V	0.7	7440-62-2

RN 119317-57-6 HCAPLUS
CN Nickel alloy, base, Ni 38,Zr 34,Mn 24,Si 4.5 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	38	7440-02-0
Zr	34	7440-67-7
Mn	24	7439-96-5
Si	4.5	7440-21-3

RN 119317-68-9 HCAPLUS
CN Zirconium alloy, base, Zr 41,Ni 33,Mn 22,Cr 2.6,Si 1.4 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Zr	41	7440-67-7
Ni	33	7440-02-0
Mn	22	7439-96-5
Cr	2.6	7440-47-3
Si	1.4	7440-21-3

RN 119317-69-0 HCAPLUS
CN Zirconium alloy, base, Zr 41,Ni 35,Mn 14,Fe 8.4,Si 1.4 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Zr	41	7440-67-7
Ni	35	7440-02-0
Mn	14	7439-96-5
Fe	8.4	7439-89-6
Si	1.4	7440-21-3

IC ICM H01M004-38
ICS H01M004-00
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 56

ST battery **anode** hydrogen storage; Laves phase alloy hydrogen **anode**

IT **Anodes**
(**battery**, hydrogen-absorbing Laves phase-containing alloys for)

IT 1333-74-0, Hydrogen, uses and miscellaneous
(alloys containing absorbed, **anodes**, for batteries)

IT 70607-20-4 76598-35-1 105810-46-6 119281-87-7 119281-88-8
119281-89-9 119281-90-2 119281-91-3 119281-92-4 119281-93-5
119281-94-6 119281-95-7 119281-96-8 119281-97-9 119281-98-0
119281-99-1 119282-00-7 119282-01-8 119282-02-9 119282-03-0
119282-04-1 119282-05-2 119282-06-3 119282-07-4 119282-08-5
119282-09-6 119282-10-9 119282-11-0 119282-12-1 119282-13-2
119282-14-3 119282-15-4 119282-16-5 119282-17-6 119282-18-7
119282-19-8 119282-20-1 119282-21-2 119282-22-3 119282-23-4
119282-24-5 119282-25-6 119282-26-7 119282-27-8 119282-28-9
119282-29-0 119282-30-3 119282-31-4 119282-32-5 119282-33-6
119282-34-7 119282-35-8 119282-36-9 119282-37-0 119282-38-1
119282-39-2 119282-40-5 119282-41-6 119282-42-7 119316-95-9
119316-96-0 119316-97-1 119316-98-2 119316-99-3 119317-00-9
119317-01-0 119317-02-1 119317-03-2 119317-04-3 119317-05-4
119317-06-5 119317-07-6 119317-08-7 **119317-09-8**
119317-10-1 119317-11-2 119317-12-3 119317-13-4
119317-14-5 119317-15-6 119317-16-7 119317-17-8 119317-18-9
119317-19-0 119317-20-3 119317-21-4 119317-22-5
119317-23-6 119317-24-7 119317-25-8 119317-26-9
119317-27-0 119317-28-1 119317-29-2 119317-30-5 119317-31-6
119317-32-7 119317-33-8 119317-34-9 119317-35-0 119317-36-1
119317-37-2 119317-38-3 119317-39-4 119317-40-7 119317-41-8
119317-42-9 119317-43-0 119317-44-1 119317-45-2 119317-46-3
119317-47-4 119317-48-5 119317-49-6 119317-50-9 119317-51-0
119317-52-1 119317-53-2 119317-54-3 119317-55-4 119317-56-5
119317-57-6 119317-58-7 119317-59-8 119317-60-1
119317-61-2 119317-62-3 119317-63-4 119317-64-5 119317-65-6
119317-66-7 119317-67-8 **119317-68-9** **119317-69-0**
119317-70-3 119335-48-7
(hydrogen-absorbing, **anodes**, for batteries)

L52 ANSWER 40 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1987:70299 HCAPLUS
DOCUMENT NUMBER: 106:70299
TITLE: Metal-hydrogen alkaline battery
INVENTOR(S): Furukawa, Sanehiro; Murakami, Shuzo; Matsumoto, Takanao
PATENT ASSIGNEE(S): Sanyo Electric Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 3 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 61168869	A	19860730	JP 1985-7739 <--	19850119
JP 05084025	B	19931130		
PRIORITY APPLN. INFO.:			JP 1985-7739 <--	19850119

ED Entered STN: 07 Mar 1987
AB A Ca-Ni alloy containing B, Al, Si, Ti, V, Cr, Mn, Fe, Co, Cu, Zn, Y, Zr, Nb, Mo, Hf, Ta, Ce, Pr, Nd, Sm, and/or Gd and having similar **crystalline** structure as CaCu5 is used as H-absorbing anode material in a metal-H alkaline battery. Thus, CaNi4.8M0.2 (M = Al, Mn, B, Si, V, Cr, Fe, Zn, or Cu), Ca0.9M'0.1Ni5 (M' = Y, Zr, Nd, Ti, Mo, Hf, Ta, Ce, Pr, Nb, Sm, or Gd), CaNi4Co, Ca0.8Ti0.1Zr0.1Ni5, and Ca0.8Ti0.1Zr0.1Ni4.8Al0.2 were mixed with acetylene black and a fluoresin, pressed, and covered with Ni screens to form anodes used in batteries with sintered Ni cathodes. All these batteries, especially those with Ca0.9Y0.1Ni5, Ca0.9Zr0.1Ni5, Ca0.8Ti0.1Zr0.1Ni4.8Al0.2 anodes, had longer cycle lives than a battery using a CaNi5 anode.
IT **105778-29-8**
(hydrogen-absorbing, anodes, for alkaline batteries)
RN 105778-29-8 HCAPLUS
CN Nickel alloy, base, Ni 86,Ca 12,Si 1.7 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	86	7440-02-0
Ca	12	7440-70-2
Si	1.7	7440-21-3

IC ICM H01M004-38
ICA C22C019-03
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56
IT **Anodes**
(**battery**, hydrogen-absorbing calcium-nickel alloy)
IT 105778-23-2 105778-24-3 105778-25-4 105778-26-5 105778-27-6
105778-28-7 **105778-29-8** 105778-30-1 105778-31-2
105778-32-3 105778-33-4 105778-34-5 105778-35-6 105778-36-7
105778-37-8 105778-38-9 105778-39-0 105778-40-3 105778-41-4
105778-42-5 105778-43-6 105778-44-7 105778-45-8 106642-83-5
(hydrogen-absorbing, anodes, for alkaline batteries)

L52 ANSWER 41 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1987:7557 HCAPLUS
DOCUMENT NUMBER: 106:7557
TITLE: Metal-hydrogen alkaline battery
INVENTOR(S): Furukawa, Sanehiro; Murakami, Shuzo; Matsumoto, Takanao
PATENT ASSIGNEE(S): Sanyo Electric Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 61168870	A	19860730	JP 1985-7740 <--	19850119

PRIORITY APPLN. INFO.: JP 1985-7740 19850119
<--
ED Entered STN: 11 Jan 1987
AB A misch metal-Co alloy containing Al, Si, Ti, V, Cr, Mn, Ni, Fe, Cu, Zn,

Y, Zr, Nb, Mo, Hf, Ta, and/or alkaline earth element and having a similar **crystalline** structure as CaCu5 is used as H-absorbing anode material in the title battery. Thus, M1-xM'xCo5-yM''y (where M = La, Ce, Pr, Nd, Sm, and/or Gd; M' = Ti, Y, Zr, Nb, Mo, Hf, Ta, Mg, Ca, Sr, or Ba; x = 0 or 0.1; M'' = Al, Mn, Si, V, Cr, Ni, Fe, Cu, or Zn; and y = 0 or 0.2) were mixed with acetylene black and a fluoresin, pressed, and covered with Ni screens to form anodes for batteries using sintered Ni cathodes. All batteries having anodes of compns. with x = 0.1 and/or y = 0.2 showed higher discharge capacities and longer cycle lives than batteries having x and y = 0.

IT **105778-61-8**
(hydrogen-absorbing, anodes, for alkaline batteries)
RN 105778-61-8 HCAPLUS
CN Cobalt alloy, base, Co 66,La 32,Si 1.3 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Co	66	7440-48-4
La	32	7439-91-0
Si	1.3	7440-21-3

IC ICM H01M004-38
ICA C22C019-07
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56
IT **Anodes**
(**battery**, hydrogen-absorbing misch metal-cobalt alloy)
IT 105778-53-8 105778-54-9 105778-55-0 105778-56-1 105778-57-2
105778-58-3 105778-59-4 105778-60-7 **105778-61-8**
105778-62-9 105778-63-0 105778-64-1 105778-65-2 105778-66-3
105778-67-4 105778-68-5 105778-69-6 105778-70-9 105778-71-0
105778-72-1 105778-73-2 105778-74-3 105778-75-4 105778-76-5
105778-77-6 105778-78-7 105778-79-8 105778-80-1 105810-48-8
(hydrogen-absorbing, anodes, for alkaline batteries)

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=> => d que 153
L3          1 SEA FILE=REGISTRY ABB=ON  PLU=ON  CENISI2/MF
L10     18752 SEA FILE=HCAPLUS ABB=ON  PLU=ON  "BATTERY ANODES"+PFT,NT,OL
              D,NEW/CT
L11     24086 SEA FILE=HCAPLUS ABB=ON  PLU=ON  "BATTERY CATHODES"+PFT,NT,
              OLD,NEW/CT
L12      9464 SEA FILE=HCAPLUS ABB=ON  PLU=ON  "BATTERY ELECTROLYTES"+PFT
              ,NT,OLD,NEW/CT
L13     71770 SEA FILE=HCAPLUS ABB=ON  PLU=ON  "SECONDARY BATTERIES"+PFT,
              NT,OLD,NEW/CT
L19        24 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L3
L20         0 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L19 AND (L10 OR L11 OR
              L12 OR L13)
L21         0 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L19 AND (ELECTROD? OR
              BATTER? OR CATHOD? OR ANOD?)
L22         0 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L19 AND ELECTROCHEM?/SC,SX

L23        24 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L19 OR L20 OR L21 OR
              L22)
L24         1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L23 AND LATTICE CONSTANT?

L25         0 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L23 AND CRYSTAL AXES?
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L26 24 SEA FILE=HCAPLUS ABB=ON PLU=ON (L23 OR L24 OR L25)
L53 20 SEA FILE=HCAPLUS ABB=ON PLU=ON L26 AND (1840-2003)/PRY,AY,PY

=> d l53 1-20 ibib ed abs hitstr hitind

L53 ANSWER 1 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:544003 HCAPLUS
DOCUMENT NUMBER: 139:253994
TITLE: Transport and magnetic properties of CeNiGe2-xSix single crystals
AUTHOR(S): Hong, S. O.; Mun, E. D.; Kwon, Y. S.
CORPORATE SOURCE: BK21 Physics Research Division and Institute of Basic Science, Sungkyunkwan University, Suwon, 440-746, S. Korea
SOURCE: Physica B: Condensed Matter (Amsterdam, Netherlands) (**2003**), 329-333(Pt. 2), 514-515
CODEN: PHYBE3; ISSN: 0921-4526
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 16 Jul 2003
AB The elec. resistivity and the magnetic susceptibility have been measured for the series of intermetallic compds. CeNiGe2-xSix. CeNiGe2 is an antiferromagnetic compound with TN = 3.3 K. CeNiSi2 is an intermediate-valence compound with cerium valence varying from 3.4 at room temperature to 3.75 at 1.8 K. With increasing x, the coupling constant J is enhanced and thus the Kondo temperature TK increases.
IT **12442-41-0**, Cerium nickel silicide (CeNiSi2)
(transport and magnetic properties of CeNiGe2-xSix single crystals)
RN 12442-41-0 HCAPLUS
CN Cerium nickel silicide (CeNiSi2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Ce	1	7440-45-1
Si	2	7440-21-3
Ni	1	7440-02-0

Answer set L53
1-20 references
for the compound
of formula CeNiSi2

CC 77-1 (Magnetic Phenomena)
IT **12442-41-0**, Cerium nickel silicide (CeNiSi2) 1300[illegible]
597564-76-6, Cerium germanium nickel silicide (CeGe1.8NiSi0.2)
597564-77-7, Cerium germanium nickel silicide (CeGe1.6NiSi0.4)
597564-78-8, Cerium germanium nickel silicide (CeGe0.8NiSi1.2)
597564-79-9, Cerium germanium nickel silicide (CeGe1.4NiSi0.6)
597564-80-2, Cerium germanium nickel silicide (CeGeNiSi)
597564-81-3, Cerium germanium nickel silicide (CeGe0.2NiSi1.8)
(transport and magnetic properties of CeNiGe2-xSix single crystals)
REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L53 ANSWER 2 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:128025 HCAPLUS
DOCUMENT NUMBER: 138:377651
TITLE: Anderson lattice in CeNiSi2 intermediate valence compound

AUTHOR(S): Mun, E. D.; Kwon, Y. S.; Jung, M. H.
CORPORATE SOURCE: BK21 Physics Research Division and Institute of Basic Science, SungKyunKwan University, Suwon, 440-746, S. Korea
SOURCE: Physical Review B: Condensed Matter and Materials Physics (**2003**), 67(3), 033103/1-033103/3
CODEN: PRBMDO; ISSN: 0163-1829
PUBLISHER: American Physical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 20 Feb 2003
AB The authors present exptl. results of elec. resistivity, Hall coefficient, magnetic susceptibility, and sp. heat for single crystals of the Ce-based intervalent compound CeNiSi2. The results show similar behaviors observed in Yb-based intervalent compds. and support a recent theory of the Anderson lattice, in which the Fermi-liquid coherence is global over the whole lattice. There is a low-temperature scale Tcoh .apprx. 50 K for the onset of Fermi-liquid coherence, in addition to a high-temperature scale TK* .apprx. 150 K for the Kondo lattice condensation. Therefore, the authors conclude that two energy scales are generic in intermediate valence compds. based on Ce where the orbital degeneracy is smaller and where the size of the 4f-orbital is larger than those based on Yb.
IT **12442-41-0**, Cerium Nickel silicide (CeNiSi2)
(Anderson lattice in CeNiSi2 intermediate valence compound)
RN 12442-41-0 HCAPLUS
CN Cerium nickel silicide (CeNiSi2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Ce	1	7440-45-1
Si	2	7440-21-3
Ni	1	7440-02-0

CC 77-1 (Magnetic Phenomena)
Section cross-reference(s): 69, 76
IT **12442-41-0**, Cerium Nickel silicide (CeNiSi2)
(Anderson lattice in CeNiSi2 intermediate valence compound)
REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L53 ANSWER 3 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:515530 HCAPLUS
DOCUMENT NUMBER: 137:255734
TITLE: Anderson lattice in CeNiSi2 intermediate valence compound
AUTHOR(S): Hong, S. O.; Kwon, Y. S.; Jung, M. H.
CORPORATE SOURCE: BK21 Physics Research Division and Institute of Basic Science, SungKyunKwan University, Suwon, 440-746, S. Korea
SOURCE: Los Alamos National Laboratory, Preprint Archive, Condensed Matter (**2002**) 1-8, arXiv:cond-mat/0207240, 9 Jul 2002
CODEN: LNCMFR
URL: http://xxx.lanl.gov/pdf/cond-mat/0207240
PUBLISHER: Los Alamos National Laboratory
DOCUMENT TYPE: Preprint
LANGUAGE: English

ED Entered STN: 11 Jul 2002
AB The authors present exptl. results of elec. resistivity, Hall coefficient, magnetic susceptibility, and sp. heat for single crystals of the Ce-based intervalent compound CeNiSi2. The results show similar behaviors observed in Yb-based intervalent compds. and support recent theory of the Anderson lattice, in which the Fermi-liquid coherence is global over the whole lattice. There is a low-temperature scale Tcoh of .apprx.50 K for the onset of Fermi-liquid coherence, in addition to a high-temperature scale TK* of .apprx.150 K for the Kondo-lattice condensation. Therefore, the authors conclude that two energy scales are generic in intermediate valence compds. based on Ce where the orbital degeneracy is smaller and where the size of the 4f orbital is larger than those based on Yb.
IT **12442-41-0**, Cerium Nickel silicide (CeNiSi2)
(Anderson lattice in CeNiSi2 intermediate valence compound)
RN 12442-41-0 HCAPLUS
CN Cerium nickel silicide (CeNiSi2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Ce	1	7440-45-1
Si	2	7440-21-3
Ni	1	7440-02-0

CC 76-1 (Electric Phenomena)
Section cross-reference(s): 69, 77
IT **12442-41-0**, Cerium Nickel silicide (CeNiSi2)
(Anderson lattice in CeNiSi2 intermediate valence compound)
REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L53 ANSWER 4 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:284916 HCAPLUS
DOCUMENT NUMBER: 134:360491
TITLE: Magnetism of intermetallic compounds of RTX2 type (R - rare earth metal, T - transition metal, X = Si, Ge)
AUTHOR(S): Gil, A.; Tubielewicz, K.
CORPORATE SOURCE: Wyzsza Szkola Pedagog., Czestochowa, Pol.
SOURCE: Metallofizika i Noveishie Tekhnologii (**2001**), 23(2), 153-165
CODEN: MNTEEU; ISSN: 1024-1809
PUBLISHER: Natsional'na Akademiya Nauk Ukraini, Institut Metalofiziki im. G. V. Kurdyumova
DOCUMENT TYPE: Journal
LANGUAGE: Russian
ED Entered STN: 23 Apr 2001
AB Exptl. results and theor. prediction of structural and magnetic properties of RNiX2 (X = Si, Ge) and RMnxGe2 compds. are presented. A large number of RTX2 compds. crystallize in the orthorhombic CeNiSi2-type structure. Magnetic susceptibility data indicate that the RNiX2 compds. with R = Pr, Nd are ferromagnetics and with R = Gd, Tb, Dy, Ho, Er are antiferromagnetics at low temps.; the RMnxGe2 compds. with R = Nd, Gd, Tb, Dy and Ho are antiferromagnetics at low temps., whereas those with R = Sm and Er are paramagnetics up to 4.2 K. The exptl. results are discussed in terms of the RKKY theory and crystal elec. field effects.
IT **12442-41-0**, Cerium nickel silicide (CeNiSi2)

(magnetism and structure of RNiSi2 and RTGe2 type intermetallic compds. (R - rare earth metal, T - Ni, Mn))

RN 12442-41-0 HCAPLUS

CN Cerium nickel silicide (CeNiSi2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Ce	1	7440-45-1
Si	2	7440-21-3
Ni	1	7440-02-0

CC 77-1 (Magnetic Phenomena)

IT **12442-41-0**, Cerium nickel silicide (CeNiSi2) 12444-55-2, Dysprosium nickel silicide (DyNiSi2) 12444-62-1, Erbium nickel silicide (ErNiSi2) 12500-15-1, Gadolinium nickel silicide (GdNiSi2) 12502-05-5, Holmium nickel silicide (HoNiSi2) 12503-32-1, Neodymium nickel silicide (NdNiSi2) 12503-38-7, Nickel praseodymium silicide (NiPrSi2) 12503-41-2, Nickel samarium silicide (NiSmSi2) 12503-42-3, Nickel terbium silicide (NiTbSi2) 130005-48-0 130005-50-4 130005-51-5 130005-52-6 142069-69-0 153143-81-8 153143-82-9 154668-59-4 154668-60-7 155103-09-6 155103-10-9 155103-11-0 155103-12-1 155103-13-2 155103-14-3 155103-15-4 202134-95-0 202134-97-2 339176-22-6 339176-23-7 339176-24-8 339176-25-9 339176-27-1

(magnetism and structure of RNiSi2 and RTGe2 type intermetallic compds. (R - rare earth metal, T - Ni, Mn))

L53 ANSWER 5 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1998:639654 HCAPLUS

DOCUMENT NUMBER: 129:338881

TITLE: The double nature of the ErNiSi2 magnetic structure neutron diffraction and magnetic measurements

AUTHOR(S): Schobinger-Papamantellos, P.; Buschow, K. H. J.; Wilkinson, C.; Fauth, F.; Ritter, C.

CORPORATE SOURCE: Laboratorium fur Kristallographie, ETHZ, Zurich, CH-8092, Switz.

SOURCE: Journal of Magnetism and Magnetic Materials (**1998**), 189(2), 214-224
CODEN: JMMMDC; ISSN: 0304-8853

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 09 Oct 1998

AB The magnetic phase diagram of the compound ErNiSi2 of CeNiSi2 structure type (Cmcm, space group) was studied by neutron diffraction and magnetic measurements. The paramagnetic neutron data confirmed the sample homogeneity. The anal. of the data collected in the magnetically ordered regime (TN = 3.4 K) showed the existence of two distinct types of magnetic ordering associated with the wave vectors q1 = (1/2, 0, 0) and q2 = (qx, qy, qz) which are not related by symmetry. The q1 phase corresponds to a uniaxial antiferromagnetic arrangement of the Er moments along b associated with a 2a cell enlargement. The refined moment value at 1.5 K is μEr = 7.6(1) μB. This ordering is stable only below T1 = 1.8 K Above T1, a 1st-order transition accompanied by hysteresis effects, leads to the appearance of a 2nd set of magnetic reflections. These reflections are associated with a wave vector in a general reciprocal lattice position q2 = (qx, qy, qz) that has a temperature dependent length and orientation. At T1 the two

phases coexist and are present in equal amts. The wave vector components of the q2 phase at T1 are qx = 0.1262(3), qy = 0.022(2) and qz = 0.2273(3) r.l.u. The structure corresponds to a sine wave modulated structure with an amplitude of 5.31 μB polarized along b. This structure dominates the high-temperature region, T>T1. Below T1 it is still present as a metastable phase but its relative amount decreases with decreasing temperature The same holds for the q1 phase which exists as a metastable phase above T1. The coexistence region on heating spans the interval T1±0.45 K.

IT **12442-41-0**, Cerium nickel silicide (CeNiSi2)
(neutron diffraction studies of magnetic structure of ErNiSi2and CeNiSi2 by neutron diffraction and magnetic measurements)

RN 12442-41-0 HCAPLUS

CN Cerium nickel silicide (CeNiSi2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Ce	1	7440-45-1
Si	2	7440-21-3
Ni	1	7440-02-0

CC 77-1 (Magnetic Phenomena)

IT **12442-41-0**, Cerium nickel silicide (CeNiSi2) 12444-62-1, Erbium nickel silicide (ErNiSi2)
(neutron diffraction studies of magnetic structure of ErNiSi2and CeNiSi2 by neutron diffraction and magnetic measurements)

REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L53 ANSWER 6 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1998:118285 HCAPLUS

DOCUMENT NUMBER: 128:262216

TITLE: Analysis of the melting temperatures of RTX2 (CeNiSi2 structure) and RT2X2 (CeGa2Al2 structure) compounds [R = La, Ce, Sm, Er, Tm; T = Fe, Co, Ni; X = Si, Ge]

AUTHOR(S): Morozkin, A. V.; Seropegin, Yu. D.; Gribanov, A. V.; Sviridov, I. A.; Kurenbaeva, J. M.; Kurenbaev, A. L.

CORPORATE SOURCE: Vorobievy Gory, Department of Chemistry, Moscow Lomonosov State University, Moscow, GSP-3, 119899, Russia

SOURCE: Journal of Alloys and Compounds (**1998**), 264(1-2), 190-196
CODEN: JALCEU; ISSN: 0925-8388

PUBLISHER: Elsevier Science S.A.

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 27 Feb 1998

AB Physicochem. anal. techniques, including x-ray phase anal. and DTA were employed for the characterization of compds. including their melting temperature The melting temperature of 23 RT2X2 compds. belonging to the CeGa2Al2 structure has been measured. The melting temperature of 19 RTX2 compds. belonging to the CeNiSi2 structure has been measured (LaCoSi2, LaNiSi2, CeFeSi2, CeCoSi2, CeNiSi2, SmCoSi2, SmNiSi2, ErCoSi2, ErNiSi2, TmCoSi2, TmNiSi2, LaCoGe2, LaNiGe2, CeFeGe2, CeCoGe2, CeNiGe2, SmFeGe2, SmCoGe2, SmNiGe2). It is established, that the new

ternary compound SmCoSi2 belongs to the CeNiSi2 structure type (group Cmcm, a = 0.4088(1) nm, b = 1.6320(3) nm, c = 0.4008(1) nm).
IT **12442-41-0**, Cerium nickel silicide (CeNiSi2)
(melting temps. of RTX2 (CeNiSi2 structure) and RT2X2 (CeGa2Al2 structure) compds. [R = La, Ce, Sm, Er, Tm; T = Fe, Co, Ni; X = Si, Ge])
RN 12442-41-0 HCAPLUS
CN Cerium nickel silicide (CeNiSi2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Ce	1	7440-45-1
Si	2	7440-21-3
Ni	1	7440-02-0

CC 65-6 (General Physical Chemistry)
Section cross-reference(s): 56, 69, 75
IT 12205-48-0, Cerium cobalt silicide (CeCo2Si2) 12205-50-4, Cerium iron silicide (CeFe2Si2) 12205-51-5 12205-55-9, Cerium nickel silicide (CeNi2Si2) 12206-59-6, Erbium nickel silicide (ErNi2Si2) 12209-09-5, Lanthanum nickel silicide (LaNi2Si2) 12210-28-5, Nickel samarium silicide (Ni2SmSi2) 12210-30-9, Nickel thulium silicide (Ni2TmSi2) 12432-28-9, Cerium cobalt silicide (CeCoSi2) 12442-38-5 12442-40-9 **12442-41-0**, Cerium nickel silicide (CeNiSi2) 12444-61-0 12444-62-1, Erbium nickel silicide (ErNiSi2) 12500-39-9 12500-53-7, Ge2Ni2Sm 12500-55-9, Ge2Ni2Tm 12503-41-2, Nickel samarium silicide (NiSmSi2) 12503-43-4, Nickel thulium silicide (NiTmSi2) 12508-80-4, Lanthanum nickel silicide (LaNiSi2) 12515-25-2, Cerium iron silicide (CeFeSi2) 50811-27-3 50811-30-8 50811-34-2 50811-36-4 60616-42-4, Cobalt erbium silicide (Co2ErSi2) 60616-45-7, Cobalt samarium silicide (Co2SmSi2) 67115-33-7, Cobalt lanthanum silicide (Co2LaSi2) 82445-77-0, Cobalt lanthanum silicide (CoLaSi2) 84400-11-3, Cobalt erbium silicide (CoErSi2) 84400-14-6, Cobalt samarium silicide (CoSmSi2) 84400-16-8, Cobalt thulium silicide (CoTmSi2) 84721-09-5, Cobalt thulium silicide (Co2TmSi2) 86944-68-5, Fe2Ge2Sm 130005-48-0 130005-49-1, Ge2LaNi 130005-50-4 205173-32-6, CoGe2La 205173-33-7, CeFeGe2 205173-34-8, CeCoGe2 205173-35-9, FeGe2Sm 205173-36-0, CoGe2Sm
(melting temps. of RTX2 (CeNiSi2 structure) and RT2X2 (CeGa2Al2 structure) compds. [R = La, Ce, Sm, Er, Tm; T = Fe, Co, Ni; X = Si, Ge])
REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L53 ANSWER 7 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1996:417264 HCAPLUS
DOCUMENT NUMBER: 125:128638
TITLE: How the anisotropy of transport and magnetic properties changes with TK as evidenced in CePtSi2 and CeNiSi2
AUTHOR(S): Kasaya, M.; Ito, M.; Ono, A.; Sakai, O.
CORPORATE SOURCE: Department of Physics, Faculty of Science, Tohoku University, Sendai, 980, Japan
SOURCE: Physica B: Condensed Matter (Amsterdam) (**1996**), 223&224(1-4), 336-339
CODEN: PHYBE3; ISSN: 0921-4526
PUBLISHER: Elsevier

DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 16 Jul 1996
AB The authors have prepared single crystals of orthorhombic compds. CePtSi2 and CeNiSi2. From the transport and magnetic susceptibility measurements, it is found that CePtSi2 is a Kondo compound with low TK, whereas CeNiSi2 is a mixed-valent compound with high TK. The peculiar results are that CePtSi2 shows strong anisotropy in the temperature dependence of magnetic and transport properties, but CeNiSi2 shows weak anisotropy. These results are discussed in terms of TK and crystalline field splitting.
IT **12442-41-0**, Cerium nickel silicide (CeNiSi2)
(how anisotropy of transport and magnetic properties changes with TK as evidenced in CePtSi2 and CeNiSi2)
RN 12442-41-0 HCAPLUS
CN Cerium nickel silicide (CeNiSi2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Ce	1	7440-45-1
Si	2	7440-21-3
Ni	1	7440-02-0

CC 76-1 (Electric Phenomena)
Section cross-reference(s): 77
IT **12442-41-0**, Cerium nickel silicide (CeNiSi2) 131576-91-5, Cerium platinum silicide (CePtSi2)
(how anisotropy of transport and magnetic properties changes with TK as evidenced in CePtSi2 and CeNiSi2)

L53 ANSWER 8 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1996:101311 HCAPLUS
DOCUMENT NUMBER: 124:159358
TITLE: High-energy-resolution photoemission study of CeNiSi2 and CePtSi2
AUTHOR(S): Kumigashira, H.; Chainani, A.; Yokoya, T.; Akaki, O.; Takahashi, T.; Ito, M.; Kasaya, M.; Sakai, O.
CORPORATE SOURCE: Dep. Phys., Tohoku Univ., Sendai, 980-77, Japan
SOURCE: Physical Review B: Condensed Matter (**1996**), 53(5), 2565-8
CODEN: PRBMDO; ISSN: 0163-1829
PUBLISHER: American Physical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 17 Feb 1996
AB We studied the electronic structure of isostructural CeNiSi2 and CePtSi2 using high-resolution low-temperature photoemission spectroscopy. CeNiSi2 is a typical valence fluctuation material, while CePtSi2 is a low TK(.apprx.10 K) heavy-fermion system. The valence-band spectra show that Ni 3d derived states appear at energies closer to the Fermi level (EF) compared to the Pt 5d derived states. The near-EF spectra exhibit the characteristic spin-orbit splitting of 4f states (4f5/2 and 4f7/2), with higher 4f5/2 intensity in CeNiSi2 than in CePtSi2. Numerical simulations based on the single-impurity Anderson model show that the hybridization between the conduction band and f electrons is stronger in CeNiSi2 than in CePtSi2. This is qual. understood in terms of proximity of Ni 3d states to the f level. The obtained spectroscopic results were discussed in comparison with transport and magnetic measurements.

IT 12442-41-0, Cerium nickel silicideCeNiSi2
(high-energy-resolution photoemission study of CeNiSi2 and CePtSi2)
RN 12442-41-0 HCAPLUS
CN Cerium nickel silicide (CeNiSi2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Ce	1	7440-45-1
Si	2	7440-21-3
Ni	1	7440-02-0

CC 73-6 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
IT 12442-41-0, Cerium nickel silicideCeNiSi2 131576-91-5, Cerium platinum silicideCePtSi2
(high-energy-resolution photoemission study of CeNiSi2 and CePtSi2)

L53 ANSWER 9 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1994:287922 HCAPLUS
DOCUMENT NUMBER: 120:287922
TITLE: Magnetic properties of RNiSi2 and CeNiGe2 compounds
AUTHOR(S): Gil, A.; Szytula, A.; Tomkowicz, Z.; Wojciechowski, K.; Zygmunt, A.
CORPORATE SOURCE: Institute of Physics, Cracow Technical University, Cracow, Pol.
SOURCE: Journal of Magnetism and Magnetic Materials (1994), 129(2-3), 271-8
CODEN: JMMMDC; ISSN: 0304-8853
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 28 May 1994
AB The series of ternary silicides and germanides RNiX2 (R-rare earth, X = Si or Ge) with an orthorhombic CeNiSi2-type structure have been investigated by X-ray diffraction and magnetometric measurements. CeNiSi2 is a mixed valence system and SmNiGe2 has a nonmagnetic state at low temps. CeNiGe2 and SmNiSi2 are antiferromagnets. The compds. with R = Pr and Nd are ferromagnets while those containing R = Gd, Tb, Dy, Ho and Er are antiferromagnets with a Neel temps. below 42 K. For both Si and Ge groups of compds. the Neel temps. do not follow de Gennes scaling. This behavior of TN can be understood on the basis of crystalline-elec. field effects.
IT 12442-41-0, Cerium nickel silicide (CeNiSi2)
(magnetic properties of)
RN 12442-41-0 HCAPLUS
CN Cerium nickel silicide (CeNiSi2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Ce	1	7440-45-1
Si	2	7440-21-3
Ni	1	7440-02-0

CC 77-1 (Magnetic Phenomena)
IT 12442-41-0, Cerium nickel silicide (CeNiSi2) 12444-55-2, Dysprosium nickel silicide (DyNiSi2) 12444-62-1, Erbium nickel silicide (ErNiSi2) 12500-15-1, Gadolinium nickel silicide (GdNiSi2) 12502-05-5, Holmium nickel silicide (HoNiSi2) 12503-32-1, Neodymium

nickel silicide (NdNiSi2) 12503-38-7, Nickel praseodymium silicide (NiPrSi2) 12503-41-2, Nickel samarium silicide (NiSmSi2) 12503-42-3, Nickel terbium silicide (NiTbSi2) 130005-48-0 130005-50-4 130005-51-5 130005-52-6 142069-69-0 153143-81-8 153143-82-9 154668-59-4 154668-60-7
(magnetic properties of)

L53 ANSWER 10 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1994:259400 HCAPLUS
DOCUMENT NUMBER: 120:259400
TITLE: Susceptibility of the rare earth ternary RNiSi2 and RNiGe2 compounds
AUTHOR(S): Gil, A.; Szytula, A.; Tomkowicz, Z.; Wojciechowski; Zygmunt, A.
CORPORATE SOURCE: Inst. Phys., Cracow Tech. Univ., Krakow, 30-074, Pol.
SOURCE: Acta Physica Polonica, A (**1994**), 85(2), 271-4
CODEN: ATPLB6; ISSN: 0587-4246
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 14 May 1994
AB The ternary silicides and germanides RNiX2 (R = rare earth, X = Si or Ge) with the orthorhombic CeNiSi2-type structure were studied by magnetometric measurements. CeNiSi2-type structure were studied by magnetometric measurements. CeNiSi2, CeNiGe2 and SmNiGe2 have a nonmagnetic state at low temps. The compds. with R = Pr and Nd are ferromagnets while those containing R = Gd-Er are antiferromagnets. The de Gennes scaling of the Neel temps. indicates a strong influence of the crystal-elec. field effects.
IT **12442-41-0**, Cerium nickel silicide (CeNiSi2)
(magnetic susceptibility of)
RN 12442-41-0 HCAPLUS
CN Cerium nickel silicide (CeNiSi2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Ce	1	7440-45-1
Si	2	7440-21-3
Ni	1	7440-02-0

CC 77-1 (Magnetic Phenomena)
IT **12442-41-0**, Cerium nickel silicide (CeNiSi2) 12444-55-2, Dysprosium nickel silicide (DyNiSi2) 12444-62-1, Erbium nickel silicide (ErNiSi2) 12500-15-1, Gadolinium nickel silicide (GdNiSi2) 12502-05-5, Holmium nickel silicide (HoNiSi2) 12503-32-1, Neodymium nickel silicide (NdNiSi2) 12503-38-7, Nickel praseodymium silicide (NiPrSi2) 12503-41-2, Nickel samarium silicide (NiSmSi2) 12503-42-3, Nickel terbium silicide (NiTbSi2) 130005-48-0, Ge2NiSm 130005-50-4, CeGe2Ni 130005-51-5, Ge2NiPr 130005-52-6, Ge2NdNi 142069-69-0, Ge2NiTb 153143-81-8 153143-82-9, ErGe2Ni 154668-59-4, GdGe2Ni 154668-60-7, DyGe2Ni
(magnetic susceptibility of)

L53 ANSWER 11 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1992:226475 HCAPLUS
DOCUMENT NUMBER: 116:226475
TITLE: Magnetic ordering in the heavy-fermion compounds cerium platinum silicide (CePtSi2) and

cerium-nickel-germanium (CeNiGe2)
AUTHOR(S): Geibel, C.; Kaemmerer, C.; Seidel, B.; Bredl, C. D.; Grauel, A.; Steglich, F.
CORPORATE SOURCE: Inst. Festkoerperphys., Tech. Hochsch. Darmstadt, Darmstadt, W-6100, Germany
SOURCE: Journal of Magnetism and Magnetic Materials (**1992**), 108(1-3), 207-8
CODEN: JMMMDC; ISSN: 0304-8853
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 31 May 1992
AB The ground state of three CeTMX2 compds. with CeNiSi2 structure type was investigated by waking elec.-resistivity, magnetic-susceptibility and specific-heat measurements. Whereas CeNiSi2 is an intermediate-valent system, in CePtSi2 and CeNiGe2 magnetic ordering in the presence of heavy fermions is observed The trends in heavy-fermion formation on going from either the 111 or 122 to the 112 compds. are discussed.
IT **12442-41-0**, Cerium nickel silicide (CeNiSi2)
(elec. resistivity of, temperature dependence of)
RN 12442-41-0 HCAPLUS
CN Cerium nickel silicide (CeNiSi2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Ce	1	7440-45-1
Si	2	7440-21-3
Ni	1	7440-02-0

CC 77-1 (Magnetic Phenomena)
IT **12442-41-0**, Cerium nickel silicide (CeNiSi2)
(elec. resistivity of, temperature dependence of)

L53 ANSWER 12 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1991:420592 HCAPLUS
DOCUMENT NUMBER: 115:20592
TITLE: Low-temperature heat capacity and magnetic properties of the RNiX2 compounds (R = La, Ce; X = Si, Ge, Sn)
AUTHOR(S): Pecharskii, V. K.; Gschneidner, K. A., Jr.; Miller, L. L.
CORPORATE SOURCE: Dep. Mater. Sci. Eng., Iowa State Univ., Ames, IA, 50011, USA
SOURCE: Physical Review B: Condensed Matter and Materials Physics (**1991**), 43(13-B), 10906-14
CODEN: PRBMDO; ISSN: 0163-1829
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 12 Jul 1991
AB Heat-capacity (1.4-80 K) and magnetic-susceptibility (1.5-300 K) measurements were carried out for the series of 6 ternary intermetallic compds. with RNiX2 composition (R = La, Ce and X = Si, Ge, and Sn). All of the LaNiX2 compds. exhibit normal metallic behavior with an electronic specific-heat coefficient in the range 5.2-5.6 mJ/mol K2 and Debye temperature decreasing from 451 K (LaNiSi2) to 258 K (LaNiSn2). The CeNiX2 compds. display anomalous behaviors. CeNiSi2 is an intermediate-valence compound at high temps. with the Ce valence varying from 3.35+ at room temperature to 3.65+ at T = 50 K, and becomes a spin fluctuator at low (around 3.3 K) temperature The spin fluctuations can be

quenched by an external magnetic field of about 5.3 T. Both CeNiGe2 and CeNiSn2 undergo 2-step antiferromagnetic phase transitions at TNII = 3.9 K and TNI = 3.2 K, which are accompanied by sharp anomalies for all properties studied. The electronic specific-heat consts. (in units of mJ/mol Ce K2) of the 3 Ce compds. are 45.3 ± 0.6 for CeNiSi2, 97.6 ± 0.9 for CeNiGe, and 60.8 ± 0.7 for CeNiSn2.

IT **12442-41-0**, Cerium nickel silicide (CeNiSi2)
(crystal structure and thermodn. properties and magnetic properties of)

RN 12442-41-0 HCAPLUS

CN Cerium nickel silicide (CeNiSi2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Ce	1	7440-45-1
Si	2	7440-21-3
Ni	1	7440-02-0

CC 77-1 (Magnetic Phenomena)

IT **12442-41-0**, Cerium nickel silicide (CeNiSi2) 116066-77-4 116066-78-5 130005-49-1, Ge2LaNi 130005-50-4, CeGe2Ni
(crystal structure and thermodn. properties and magnetic properties of)

L53 ANSWER 13 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1990:506783 HCAPLUS

DOCUMENT NUMBER: 113:106783

TITLE: New isotypes of cerium nickel silicide (CeNiSi2) in the systems R-M-X (R = lanthanum-lutetium, M = metals of Groups 7-11 and X = germanium, tin). II. Interpretation of their nonstoichiometry

AUTHOR(S): Venturini, G.; Francois, M.; Malaman, B.; Roques, B.

CORPORATE SOURCE: Lab. Chim. Solide Miner., Univ. Nancy I, Vandoeuvre les Nancy, 54506, Fr.

SOURCE: Journal of the Less-Common Metals (**1990**), 160(2), 215-28
CODEN: JCOMAH; ISSN: 0022-5088

DOCUMENT TYPE: Journal

LANGUAGE: French

ED Entered STN: 16 Sep 1990

AB An interpretation of the differences in composition between nonstoichiometric RMxX2 germanides and stannides is proposed. The CeNiSi2-type structure of these compds. can be described as the result of M intercalations in square pyramidal sites of ZrSi2-type RX2 frameworks. These insertions depend not only on the relative size of the host sites and guest M atoms but also on the interactions between these M atoms and some of their R next neighbors. The affinity of the M atoms for the R rare earths increases with their atomic number in each of the 4th and 5th periods. In the X1-X1 chains, chemical bonding varies according to M; it is very strong in the Cu compds.

IT **12442-41-0**, Cerium nickel silicide (CeNiSi2)
(isotypism of rare earth transition metal germanides and stannides with, interpretation of, nonstoichiometry in relation to)

RN 12442-41-0 HCAPLUS

CN Cerium nickel silicide (CeNiSi2) (CA INDEX NAME)

Component	Ratio	Component Registry Number

Ce	1	7440-45-1
Si	2	7440-21-3
Ni	1	7440-02-0

CC 75-7 (Crystallography and Liquid Crystals)
Section cross-reference(s): 78
IT **12442-41-0**, Cerium nickel silicide (CeNiSi2)
(isotypism of rare earth transition metal germanides and stannides with, interpretation of, nonstoichiometry in relation to)

L53 ANSWER 14 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1989:601938 HCAPLUS
DOCUMENT NUMBER: 111:201938
TITLE: Cerium valence in ternary d-metal silicides
AUTHOR(S): Levin, E. M.; Bodak, O. I.; Finkel'shtein, L. D.
CORPORATE SOURCE: L'vov. Gos. Univ., Lvov, USSR
SOURCE: Fizika Tverdogo Tela (Sankt-Peterburg) (**1989**), 31(2), 214-16
CODEN: FTVTAC; ISSN: 0367-3294
DOCUMENT TYPE: Journal
LANGUAGE: Russian
ED Entered STN: 25 Nov 1989
AB The problem is considered of the intermediate valence of Ce in intermetallic compds. and silicides, CeMyXz with Mg = Fe, Ni, Co, and Xz = Si, Ge, Sn. The valence of Ce changes in the interval 3.02-3.21 ± 0.03; it increases with the relative content of the d-metal in the compds. considered.
IT **12442-41-0**, Cerium nickel silicide (CeNiSi2)
(cerium valence in)
RN 12442-41-0 HCAPLUS
CN Cerium nickel silicide (CeNiSi2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Ce	1	7440-45-1
Si	2	7440-21-3
Ni	1	7440-02-0

CC 65-3 (General Physical Chemistry)
IT 12157-64-1, Cerium nickel silicide (CeNiSi) 12205-48-0, Cerium cobalt silicide (CeCo2Si2) 12205-50-4, Cerium iron silicide (CeFe2Si2) 12205-51-5, Cerium compound with germanium and nickel (1:2:2) 12205-55-9, Cerium nickel silicide (CeNi2Si2) 12432-28-9, Cerium cobalt silicide (CeCoSi2) **12442-41-0**, Cerium nickel silicide (CeNiSi2) 12515-20-7, Cerium cobalt silicide (CeCoSi) 12515-24-1, Cerium iron silicide (CeFeSi) 12515-25-2, Cerium iron silicide (CeFeSi2) 81841-39-6, Cerium compound with nickel and tin (1:2:2) 122848-15-1, Cerium nickel silicide (CeNi0-2Si0-2) 122848-16-2, Cerium cobalt silicide (CeCo0-2Si0-2) 123516-85-8, Cerium iron silicide (CeFe0-1Si0-1)
(cerium valence in)

L53 ANSWER 15 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1980:156371 HCAPLUS
DOCUMENT NUMBER: 92:156371
TITLE: Thermoelectromotive force and electroconductivity of cerium-metal-silicon system compounds (M = iron, cobalt, nickel)

AUTHOR(S): Bodak, O. I.; Levin, E. M.; Lutsiv, R. V.; Yasnitskii, R. I.
CORPORATE SOURCE: L'vov. Gos. Univ., Lvov, USSR
SOURCE: Dopovidi Akademii Nauk Ukrains'koi RSR, Seriya A: Fiziko-Matematichni ta Tekhnichni Nauki (**1980**), (2), 81-5
CODEN: DNUNDU; ISSN: 0002-3531
DOCUMENT TYPE: Journal
LANGUAGE: Ukrainian
ED Entered STN: 12 May 1984
AB The temperature coefficient of electromotive force and elec. conductivity were determined for compds. of the systems Ce-M-Si (M = Fe, Co, Ni). The maximum values of thermoemf. were observed for CeCoSi3, CeNiSi2, and CeFeSi2 (all containing 20-25 atomic % Ce). The sign of the thermoemf. of CeM2Si2 and Ce2FeSi3, CeFeSi2, and CeCoSi changed at low temps. The compds. exhibit metallic type elec. conductivity with spec. conductivity of 3200-1000 Ω-1 cm-1 at 290 K. The anomalous kinetic coefficient of most investigated compds. is related with s-f hybridization owing to the presence of 4f state near the Fermi level of Ce.
IT **12442-41-0**
(elec. conductivity and electromotive force of, temperature dependence of)
RN 12442-41-0 HCAPLUS
CN Cerium nickel silicide (CeNiSi2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Ce	1	7440-45-1
Si	2	7440-21-3
Ni	1	7440-02-0

CC 76-2 (Electric Phenomena)
IT 12157-75-4 12157-78-7 12205-48-0 12205-50-4 12205-55-9 **12442-41-0** 12442-42-1 12515-20-7 12515-21-8 12515-24-1 12515-25-2
(elec. conductivity and electromotive force of, temperature dependence of)

L53 ANSWER 16 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1978:162695 HCAPLUS
DOCUMENT NUMBER: 88:162695
TITLE: Magnetic properties of compounds of the cerium-M-silicon (M = iron, cobalt, nickel) system
AUTHOR(S): Bodak, O. I.; Gladyshevskii, E. I.; Levin, E. M.; Lutsiv, R. V.
CORPORATE SOURCE: L'viv. Derzh. Univ., Lvov, USSR
SOURCE: Dopovidi Akademii Nauk Ukrains'koi RSR, Seriya A: Fiziko-Matematichni ta Tekhnichni Nauki (**1977**), (12), 1129-32
CODEN: DNUNDU; ISSN: 0002-3531
DOCUMENT TYPE: Journal
LANGUAGE: Ukrainian
ED Entered STN: 12 May 1984
AB The magnetic susceptibilities of the compds. were measured at 77-300 K. Paramagnetic Curie temps. and effective moments were determined Changes in the magnetic properties of isostructural compds. with 3d-metal substitution are considered.
IT **12442-41-0**
(magnetic properties of)
RN 12442-41-0 HCAPLUS

CN Cerium nickel silicide (CeNiSi2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Ce	1	7440-45-1
Si	2	7440-21-3
Ni	1	7440-02-0

CC 77-1 (Magnetic Phenomena)
IT 12014-85-6D, solid solns. with cerium-nickel compound 12050-83-8 12157-64-1 12157-72-1 12157-75-4 12185-86-3D, solid solns. with cerium silicide 12205-48-0 12205-50-4 12205-55-9 12432-28-9 **12442-41-0** 12442-42-1 12442-43-2 12506-55-7D, solid solns. with cerium silicide 12506-56-8D, solid solns. with cerium-nickel compound 12515-20-7 12515-21-8 12515-24-1 12515-25-2 37279-90-6
(magnetic properties of)

L53 ANSWER 17 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1973:458255 HCAPLUS
DOCUMENT NUMBER: 79:58255
TITLE: Cerium-nickel-silicon system containing 33.3-100 atomic % cerium
AUTHOR(S): Bodak, O. I.; Mis'kiv, M. G.; Tyvanchuk, A. T.; Kharchenko, O. I.; Gladyshevskii, E. I.
CORPORATE SOURCE: L'vov. Gos. Univ. im. Franko, Lvov, USSR
SOURCE: Izvestiya Akademii Nauk SSSR, Neorganicheskie Materialy (**1973**), 9(5), 864-6
CODEN: IVNMAW; ISSN: 0002-337X
DOCUMENT TYPE: Journal
LANGUAGE: Russian
ED Entered STN: 12 May 1984
AB Phase equilibrium in the Ce-Ni-Si system in the 33.3-100 atomic % Ce region are considered, the complete isothermal section of the given phase diagram is constructed, and the homogeneity region and crystalline structure of the compds. forming in these alloys in the 33.3-100 atomic % Ce is determined Ce for all practical purposes does not dissolve the other 2 components. The binary compds. of the Ce-Si system are characterized by their capability to replace part of the Si atoms by the Ni atoms, and those of the Ce-Ni system are characterized by their capacity to replace Ni atoms by the Si atoms. The solubility of Si in the compds. of the Ce-Ni system in the region investigated does not exceed 3 atomic %. Compound Ce5Si3 dissolves approx. 9 atomic % Ni. The observed lattice parameters thereby change: a goes from 7.890 to 7.850 Å, and c goes from 13.85 to 14.70 Å. The remaining compds. of the Ce-Ni system do not dissolve more than 3 atomic % Ni. Eight ternary compds. form in the investigated region of the Ce-Ni-Si system. With increased Ce content, the chemical activity of the given alloys increases. Most of the ternary compds. form acicular crystals.
IT **12442-41-0**
(in ternary system)
RN 12442-41-0 HCAPLUS
CN Cerium nickel silicide (CeNiSi2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Ce	1	7440-45-1
Si	2	7440-21-3

Ni	1	7440-02-0

CC 68-1 (Phase Equilibriums, Chemical Equilibriums, and Solutions)
Section cross-reference(s): 70
IT 12050-83-8 12157-64-1 12205-55-9 **12442-41-0** 12442-42-1
12442-55-6 39432-16-1
(in ternary system)

L53 ANSWER 18 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1972:504767 HCAPLUS
DOCUMENT NUMBER: 77:104767
TITLE: Alloys of rare-earth metals with transition metals and silicon. Their prospective uses
AUTHOR(S): Bodak, O. I.; Gladyshevskii, E. I.
CORPORATE SOURCE: USSR
SOURCE: Redkozemel. Metal. Splavy, Vses. Soveshch. Redkozemel. Elem., [Mater.], 6th (**1971**), Meeting Date 1969, 67-72. Editor(s): Savitskii, E. M. "Nauka": Moscow, USSR.
CODEN: 25CZAG
DOCUMENT TYPE: Conference
LANGUAGE: Russian
ED Entered STN: 12 May 1984
AB Phase equilibrium in 0-33 atomic % Ce-M-Si (M is Fe, Co, or Ni systems) were studied by x-ray and microscopic methods. Homogeneity regions in and crystal structure of compds. of these systems were determined Crystal structure parameters are tabulated for 13, 7, and 4 compds. in the Ce-Ni-Si, Ce-Co-Si, and Ce-Fe-Si systems, resp. Valency state of Ce in these compds. and their properties are discussed.
IT **12442-41-0P**
(formation and crystal structure of)
RN 12442-41-0 HCAPLUS
CN Cerium nickel silicide (CeNiSi2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Ce	1	7440-45-1
Si	2	7440-21-3
Ni	1	7440-02-0

CC 56-6 (Nonferrous Metals and Alloys)
Section cross-reference(s): 69
IT 12050-83-8P 12157-64-1P 12157-72-1P 12157-75-4P 12185-78-3P
12205-48-0P 12205-50-4P 12205-55-9P 12432-28-9P
12442-41-0P 12442-42-1P 12442-43-2P 12442-55-6P
12515-20-7P 12515-21-8P 12515-24-1P 37279-30-4P 37279-90-6P
37279-32-6D, Cerium silicide (CeSi3), solid solution with CeFe3
(formation and crystal structure of)

L53 ANSWER 19 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1970:71755 HCAPLUS
DOCUMENT NUMBER: 72:71755
TITLE: Crystal structure of CeNiSi2 and related compounds
AUTHOR(S): Bodak, O. I.; Gladyshevskii, E. I.
CORPORATE SOURCE: L'vov. Gos. Univ., Lvov, USSR
SOURCE: Kristallografiya (**1969**), 14(6), 990-4
CODEN: KRISAJ; ISSN: 0023-4761
DOCUMENT TYPE: Journal
LANGUAGE: Russian

ED Entered STN: 12 May 1984

AB The lattice parameters of CeNiSi2 were measured by the rotating-crystal method and refined by the powder method (Cr K radiation, $a = 4.141 \pm 0.005$, $b = 16.418 \pm 0.005$, $c = 4.068 \pm 0.005$ Å, d. (exptl.) = 5.98, d. (calculated) = 6.09, Z = 4). Cu K radiation, the 0kl, 1kl, hk0, and hkl Weissenberg diagrams, and Patterson projections indicated the space group D172h-Cmcm. Intensities of 49 hk0 reflections and of 47 0kl reflections were estimated visually and used for Fourier synthesis. All atoms occupy the 4(c) 0y1/4; parameters were refined by the least-squares method with residual factors R0kl = 13.3% and Rhk0 = 15.8% as follows: Ce:y = 0.1070 ± 0.0002, B = 0.85 ± 0.05; Ni:y = 0.3158 ± 0.0008, B = 2.95 ± 0.17; Si(1): y = 0.4566 ± 0.0020, B = 2.53 ± 0.37; Si(2): y = 0.7492 ± 0.0004, B = 0.79 ± 0.01. The structure represents a new structure type, which is a sum of the AlB2 (or α-ThSi2) and the CeGa2Al2 types. Coordination polyhedra of Ni ([Ni(Si5Ce4)], Si(1) ([Si(1)(Ce6NiSi2)]), and Si(2) ([Si(2)(Ce4-Ni4Si4)]) are identical with the corresponding ones of the 2 compounding structures; that of Ce ([Ce(Si10Ni5Ce6)], occurring at the contact of the 2 structures, may be realized as consisting of 2 parts each of which represents one half of the corresponding polyhedron of one of the compounding structures. Other rare-earth elements form similar compds. with structures of the same type. Lattice parameters a, b, and c are given for LnNiSi2, where Ln is La through Lu, except for Ln = Pm.

IT **12442-41-0**
(crystal structure of)

RN 12442-41-0 HCAPLUS

CN Cerium nickel silicide (CeNiSi2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Ce	1	7440-45-1
Si	2	7440-21-3
Ni	1	7440-02-0

CC 70 (Crystallization and Crystal Structure)

IT **12442-41-0** 12444-55-2 12444-62-1 12444-74-5 12500-15-1 12502-05-5 12502-48-6 12503-32-1 12503-38-7 12503-41-2 12503-42-3 12503-43-4 12503-44-5 12508-80-4
(crystal structure of)

L53 ANSWER 20 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1970:71712 HCAPLUS
DOCUMENT NUMBER: 72:71712
TITLE: Cerium-nickel-silicon system in the 0-33.3 atomic % cerium range
AUTHOR(S): Bodak, O. I.; Gladyshevskii, E. I.
CORPORATE SOURCE: L'vov. Gos. Univ. im. Franko, Lvov, USSR
SOURCE: Izvestiya Akademii Nauk SSSR, Neorganicheskie Materialy (**1969**), 5(12), 2060-5
CODEN: IVNMAW; ISSN: 0002-337X
DOCUMENT TYPE: Journal
LANGUAGE: Russian

ED Entered STN: 12 May 1984

AB By using x-ray phase and microstructural analyses, the phase diagram of the ternary C-Ni-Si system within the 0-33.3 atomic % Ce region was constructed. The existence of 4 previously found compds. was confirmed, and 9 new compds. were found to exist in this system. The

1st stage of the structural investigation of 6 of these compds. was completed. It was determined that one of them crystallizes in the NaZn13 type structure, two possess superstructures and belong to the BaCd11 and NaZn13 types, and the three remaining compds. belong to new structural types. Compds. with the NaZn13 and AlB2 structural types have a variable content of Ni and Si (within the limits of 10 and 9 atomic %) present. The tendency of the Si atoms in the compds. investigated towards electropos. ionization intensifies upon increased amount of Ni present. Compds. of the compns. CeX13, CeX11, and Ce2X17 (where X = Ni or Si) form isoelectronic series with compds. of the Ce-Zn and Ce-Cu-Al systems.

IT **12442-41-0**
(crystal structure of)

RN 12442-41-0 HCAPLUS

CN Cerium nickel silicide (CeNiSi2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Ce	1	7440-45-1
Si	2	7440-21-3
Ni	1	7440-02-0

CC 70 (Crystallization and Crystal Structure)

IT **12442-41-0** 12442-42-1 12442-55-6 37279-90-6, Cerium nickel silicide
(crystal structure of)

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=> d his nofile

     (FILE 'HOME' ENTERED AT 10:43:23 ON 13 AUG 2007)

     FILE 'HCAPLUS' ENTERED AT 10:43:51 ON 13 AUG 2007
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                  SEL RN

     FILE 'REGISTRY' ENTERED AT 10:44:10 ON 13 AUG 2007
L2             36 SEA ABB=ON  PLU=ON  (12190-79-3/BI OR 21324-40-3/BI OR
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                  776302-90-0/BI OR 776302-91-1/BI OR 776302-92-2/BI OR
                  776302-93-3/BI OR 776302-94-4/BI OR 776302-95-5/BI OR
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L4          69943 SEA ABB=ON  PLU=ON  ((LA OR CE OR PR OR ND OR PM OR SM OR
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L6           5396 SEA ABB=ON  PLU=ON  ((LA OR CE OR PR OR ND OR PM OR SM OR
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                  MN OR FE OR CO OR NI OR CU OR ZN OR NB)(L)(P OR SI OR GE
                  OR SN OR SB))/ELS(L)3/ELC.SUB
L7             13 SEA ABB=ON  PLU=ON  L2 AND L6

     FILE 'HCAPLUS' ENTERED AT 10:51:28 ON 13 AUG 2007
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L9              1 SEA ABB=ON  PLU=ON  L1 AND L8
                  E  BATTERY ANODES/CT
L10         18752 SEA ABB=ON  PLU=ON  "BATTERY ANODES"+PFT,NT,OLD,NEW/CT
                  E  BATTERY CATHODES/CT
L11         24086 SEA ABB=ON  PLU=ON  "BATTERY CATHODES"+PFT,NT,OLD,NEW/CT
                  E  BATTERY ELECTROLYTES/CT
L12          9464 SEA ABB=ON  PLU=ON  "BATTERY ELECTROLYTES"+PFT,NT,OLD,NEW/C
                  T
                  E  SECONDARY BATTERIES/CT
L13         71770 SEA ABB=ON  PLU=ON  "SECONDARY BATTERIES"+PFT,NT,OLD,NEW/CT

                  E  CRYSTAL STRUCTURE/CT
L14        666169 SEA ABB=ON  PLU=ON  "CRYSTAL STRUCTURE"+PFT,NT,OLD,NEW/CT
L15           133 SEA ABB=ON  PLU=ON  L8 AND (L10 OR L11 OR L12 OR L13)
L16             5 SEA ABB=ON  PLU=ON  L15 AND L14
L17            26 SEA ABB=ON  PLU=ON  L15 AND CRYSTAL?
L18             1 SEA ABB=ON  PLU=ON  L15 AND CRYSTAL AXES?
L19            24 SEA ABB=ON  PLU=ON  L3
L20             0 SEA ABB=ON  PLU=ON  L19 AND (L10 OR L11 OR L12 OR L13)
L21             0 SEA ABB=ON  PLU=ON  L19 AND (ELECTROD? OR BATTER? OR
                  CATHOD? OR ANOD?)
L22             0 SEA ABB=ON  PLU=ON  L19 AND ELECTROCHEM?/SC,SX
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L23          24 SEA ABB=ON  PLU=ON  (L19 OR L20 OR L21 OR L22)
L24           1 SEA ABB=ON  PLU=ON  L23 AND LATTICE CONSTANT?
L25           0 SEA ABB=ON  PLU=ON  L23 AND CRYSTAL AXES?
L26          24 SEA ABB=ON  PLU=ON  (L23 OR L24 OR L25)
L27           1 SEA ABB=ON  PLU=ON  L15 AND LATTICE CONST?
L28          13 SEA ABB=ON  PLU=ON  L15 AND NEGATIVE ELECTROD?
L29         140 SEA ABB=ON  PLU=ON  L8 AND LATTICE CONST?
L30           0 SEA ABB=ON  PLU=ON  L29 AND  CRYSTAL AXES?
L31         117 SEA ABB=ON  PLU=ON  L29 AND (L14 OR CRYSTAL STR?)
L32           2 SEA ABB=ON  PLU=ON  L31 AND ELECTROCHEM?/SC,SX
L33       78025 SEA ABB=ON  PLU=ON  L4
L34        1576 SEA ABB=ON  PLU=ON  L33 AND (L10 OR ANOD?)
L35           3 SEA ABB=ON  PLU=ON  L34 AND LATTICE CONSTANT?
L36           1 SEA ABB=ON  PLU=ON  L34 AND  CRYSTAL AXES?
L37          28 SEA ABB=ON  PLU=ON  L34 AND  (L14 OR CRYSTAL STR?)
L38          25 SEA ABB=ON  PLU=ON  L37 AND ELECTROCHEM?/SC,SX
L39           5 SEA ABB=ON  PLU=ON  L38 AND L8
L40          13 SEA ABB=ON  PLU=ON  L15 AND (L14 OR  CRYSTAL STR?)
L41          33 SEA ABB=ON  PLU=ON  (L38 OR L39 OR L40)
L42          23 SEA ABB=ON  PLU=ON  L41 AND (1840-2003)/PRY,AY,PY
L43          31 SEA ABB=ON  PLU=ON  L16 OR L17 OR L18 OR L20 OR L21 OR L22
                OR L30 OR L32 OR L35 OR L36
L44          26 SEA ABB=ON  PLU=ON  L43 AND (1840-2003)/PRY,AY,PY
L45          37 SEA ABB=ON  PLU=ON  L42 OR L44
L46          37 SEA ABB=ON  PLU=ON  L45 AND ELECTROCHEM?/SC,SX
L47          37 SEA ABB=ON  PLU=ON  L46 NOT L26
L48          11 SEA ABB=ON  PLU=ON  L28 AND (1840-2003)/PRY,AY,PY
L49          46 SEA ABB=ON  PLU=ON  L47 OR L48
L50          46 SEA ABB=ON  PLU=ON  L49 AND ELECTROCHEM?/SC,SX
L51          46 SEA ABB=ON  PLU=ON  L50 NOT L26
L52          41 SEA ABB=ON  PLU=ON  L51 AND DEV/RL
L53          20 SEA ABB=ON  PLU=ON  L26 AND  (1840-2003)/PRY,AY,PY
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